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KOOTENAI DEVELOPMENT IMPOUNDMENT DAM

JULY 2011 ROUTINE OWNERS INSPECTION

Prepared for: The Remedium Group

COPY

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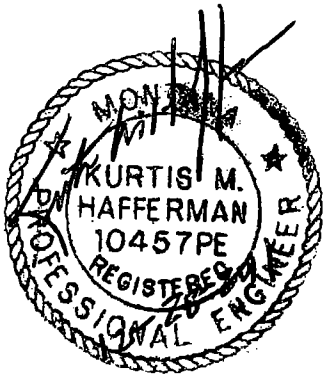
Inspection Date: July 29th, 2011
Report Date: December 28th, 2011



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INSPECTION DATE: July 29th, 2011
REFERENCE: JULY 2011 ROUNTINE OWNERS INSPECTION

1. OBJECTIVES

The end of July 2011 routine owner's inspection was conducted on Friday, July 29th, 2011. Personnel included Kurt Hafferman, P.E. and Dan Nelson from BHI and Jeremy Peterson from Chapman Construction.

The inspection was conducted as a routine owner's inspection. Project tasks to be completed included:

1. Safety meeting with Chapman and BHI
2. Check LRC-06 flows
3. Check Carney Creek and Lower Rainy Creek flows
4. Check Upper Rainy Creek and Fleetwood Creek inflows
5. Read reservoir level
6. Record piezometer readings
7. Inspect the embankment dam
8. Inspect principal spillway
9. Inspect outside and inside of drains
10. Read flumes and weirs below the drain outlets
11. Read staff gauges in all streams above and below drain outlet channel
12. Download transducer data
13. Decontaminate and depart site

2. RESULTS

BHI met with Chapman Construction at 9:45 a.m. and the routine owner's inspection began at 10:00 a.m. and was completed at 1:15 p.m. The weather was partly cloudy, with calm winds and isolated showers. The temperature ranged between 60°F and 70°F and there were no weather impediments that affected the inspection. Copies of photographs from the date of the inspection are included in Appendix 1.

Copies of the Routine Owners Inspection Report as completed after the inspection and copies of the field notes are provided in Appendix 2. The following are the results of each of the thirteen (13) tasks described above;

1. Safety Meeting: Jeremy Peterson has been assigned as the health and safety officer and is responsible for equipment condition, decontamination procedures and over-all KDID site safety. The safety meeting with Chapman Construction included discussions of the work tasks and procedures for the day, equipment safety and operation, emergency procedures, truck traffic onsite and overall job site safety. Environmental Restoration (ER) continues operations at the amphitheatre and has staged decontamination equipment onsite. Equipment was checked, no issues were found and all personnel were equipped and prepared for the site conditions. Standard equipment used included: double Tyvek suits, rubber booties, double vinyl gloves and North® full face mask. Booties were taped at the top and Tyvek suits are taped at the zipper on the outer suit.
2. The LRC-06 flume was checked at the end of the inspection. The flume was clean and clear and a gauge reading was recorded.

3. Carney Creek and Lower Rainy Creek Flows: Flumes CC-02 and LRC-02 respectively were read. Flumes were clear and gauge readings were taken and recorded, gauge readings are as follows;
    a. The CC-02 Flume was read and the gauge height was recorded at 0.22 ft. Weeds are beginning to obstruct the inlet and the staff gauge so observations are difficult.
    b. The LRC-02 Flume was read and the gauge height was recorded at 0.86 ft. There is heavy weed and clover growth from earlier flooding.
4. The Upper Rainy Creek and Fleetwood Creek flumes were read.
    a. The URC-02 Flume was read and the gauge height was recorded at 0.76 feet. Leakage is occurring on the sides from high water and the best sandbagging efforts have resulted in an estimated leakage of less than 5%. Bentonite is needed to complete the seal around the flume.
    b. The Fleetwood Creek flume was read and the gauge height was recorded at 0.36 feet.
5. The reservoir level continues to decline. The reading on the staff gauge in the reservoir was recorded at 2.24 feet.
6. All piezometer's were read and recorded; levels are continuing to decline to more typical levels. An update of the piezometer plots is included in Appendix 3.
7. No bulges, erosion or other anomalies and/or changes were noted to the embankment from the upstream face to the toe.
8. The spillway was not running but water was up to the entrance of the Box Culvert. Jeremy stated it was still flowing yesterday (approximately 10:00 a.m. July 28th) so it appears to have stopped sometime between yesterday and today. The spillway was observed by Chapman Construction to have been flowing since April 11, 2011. Flows this spring have resulted in a black sediment deposits in the open concrete spillway channel that was not previously observed.
9. Drains were inspected and the flows in the drains and stream channel below the drains were measured and recorded. Drain flows are receding in response to lower inflows. Drain 1 is still running but notably lower. Seepage is still visible along the toe from drain 7 to drain 9 but is decreasing. Water is still flowing in drain 2 with no detectable change in the rate of flow. Standing water was not noted on the surface during this inspection. Drain flows were all recorded as clear and steady.
10. All weirs and drains were read and recorded, no anomalies were noted. Results are shown in Table 1 below.
11. Gauge height readings from the flumes and weirs in streams and below the toe drains were taken. Results are summarized in Table 1 below.
12. Data from all five (5) Solinst® transducers onsite were downloaded during the inspection. Data will be processed and reviewed.
13. Initial personnel and equipment decontamination was conducted at the contamination reduction site with ER pressure washing equipment. Final removal of the inner Tyvek suit and the mask took place at the support trailer.

The readings from all the streams flowing into and out of the site, including the flumes, weirs and reservoir levels are compiled in Table 1 below. Table 2 shows the net difference between inflows and outflows on the day of the inspection.

Table 1: Flow Measurement Results

Station	GH Reading (ft.)GH Reading last Month	GH Reading (ft.)GH Reading this Month	GH Reading Difference from last month.	Flow (gpm)/VOL (AF) last Month	Flow (gpm)/ VOL (AF) This Month	Flow/VOL Difference from last month.	Temp °F
URC02	1.32	0.76	-0.56	2224 gpm	552.0 gpm	-1672 gpm	49° F
Fleetwood Creek	0.77	0.36	-0.41	477.1 gpm	87.1 gpm	-390 gpm	49° F
Reservoir	2.75	2.24	-0.51	63.31 AF	51.28 AF	-12.03 AF	67° F
F 1-2-3-4	0.94	0.51	-0.43	763 gpm	186.7 gpm	-576.3 gpm	
W 5	0.292	0.187	-0.105	52.06 gpm	17.47 gpm	-34.59 gpm	
D6	0.687	0.802	-0.115	797.7 gpm	421.26 gpm	-376.44 gpm	
F 7-8	0.20	0.13	-0.07	19.3 gpm	7.76 gpm	-11.54 gpm	
W 12	0.531	0.395	-0.136	254.7 gpm #	111.63 gpm	-143.07 gpm	
F -Seep	0.37*	0.31	-0.06	186 gpm #	63.3 gpm	-122.7 gpm	
LRC01	0.64	0.39	-0.25	2877 gpm	1262 gpm	-1615 gpm	
CC02	0.43	0.22	-0.21	377 gpm	135.86 gpm	-241.14 gpm	49° F
LRC02	1.69	0.86	-0.83	3999 gpm	1403.21 gpm	-2595.8 gpm	
LRC06	1.70	0.90	-0.80	3994 gpm	1505.66 gpm	-2488.3 gpm	43° F
Spillway	0.458	0.00	-0.458	745 gpm	0 gpm	-745 gpm	

- Estimated Flow

Table 2: Total Flows

Total Flows	
Inflows Above Reservoir at URC02 and Fleetwood Creek	639.1 gpm
Outflow Below Reservoir above CC02	1267.35 gpm
Difference	+628.25 gpm

3. DISCUSSION

3.1 Weather Updates

The precipitation in this area as of July 29th, 2011 is reported as 140% of normal at the Banfield Mountain recording site which is located just northwest of the project, indicating the water year, beginning October 1, 2010, in the vicinity of the project is still above normal. The entire basin shows precipitation levels at 127% of normal.

The temperatures in the past month have ranged from a low of 37°F to a high of 87°F and there has been 2.3 inches of precipitation since the June inspection.

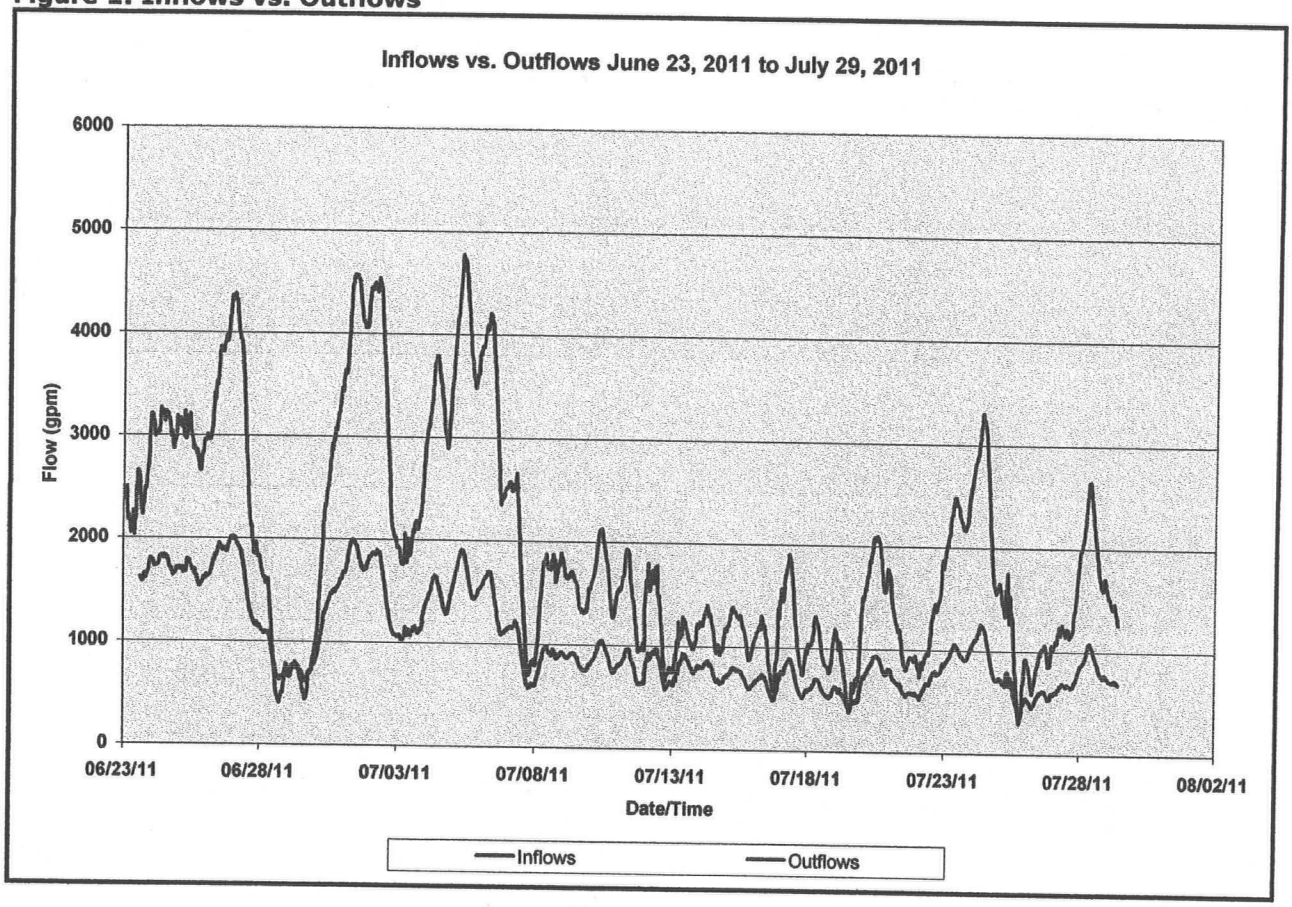
3.2 Site Access

Access to the site was obtained with the ATV. Jeremy Peterson was the onsite health and safety, equipment and personnel safety officer. Jeremy escorted operations while Mr. Hafferman and Mr. Nelson carried out the inspection. ER continues operations on the site and the inspection crew checked in at the entrance shack per EPA requirements. As required for safety, large trucks were followed on haul roads.

3.3 Surface Water Flows

Flows into the reservoir have continued to decrease with the end of the runoff season and are lower than reservoir outflows. The inflow from Upper Rainy Creek was recorded at 552 gpm, a drop of 1672 gpm from the June measurement. Fleetwood Creek has also shown a reduction in flows from 390 gpm in June to 87.1 gpm on the date of this inspection. Outflows at LRC-01 measured 1262 gpm, a drop of 1615 gpm from the June flow measurement. Figure 1 below compares inflows and outflows from June 23rd to July 29th.

Figure 1: Inflows vs. Outflows



The graph above shows surface water inflows from Rainey Creek and Fleetwood Creek just as they flow into the reservoir and outflows from the toe drain system as measured at Lower Rainey Creek-01 (LRC-01) flume immediately below the toe drain collections system. Included in the inflows are the estimated values for Fleetwood creek and the spillway flows.

The most obvious characteristic of the graph is that outflows were consistently greater than inflows over the past month. Also of note in all the flow data retrieved from the transducers is the flow pattern, the rises and falls, at each transducer location. URC-02, reservoir, spillway, and LRC-01 transducers all change elevation along the same pattern.

This data is preliminary in nature and has not been corrected for barometric changes. However, there is an observable trend that indicates a possible direct connection to inflows above and into the reservoir and flows out of the drains.

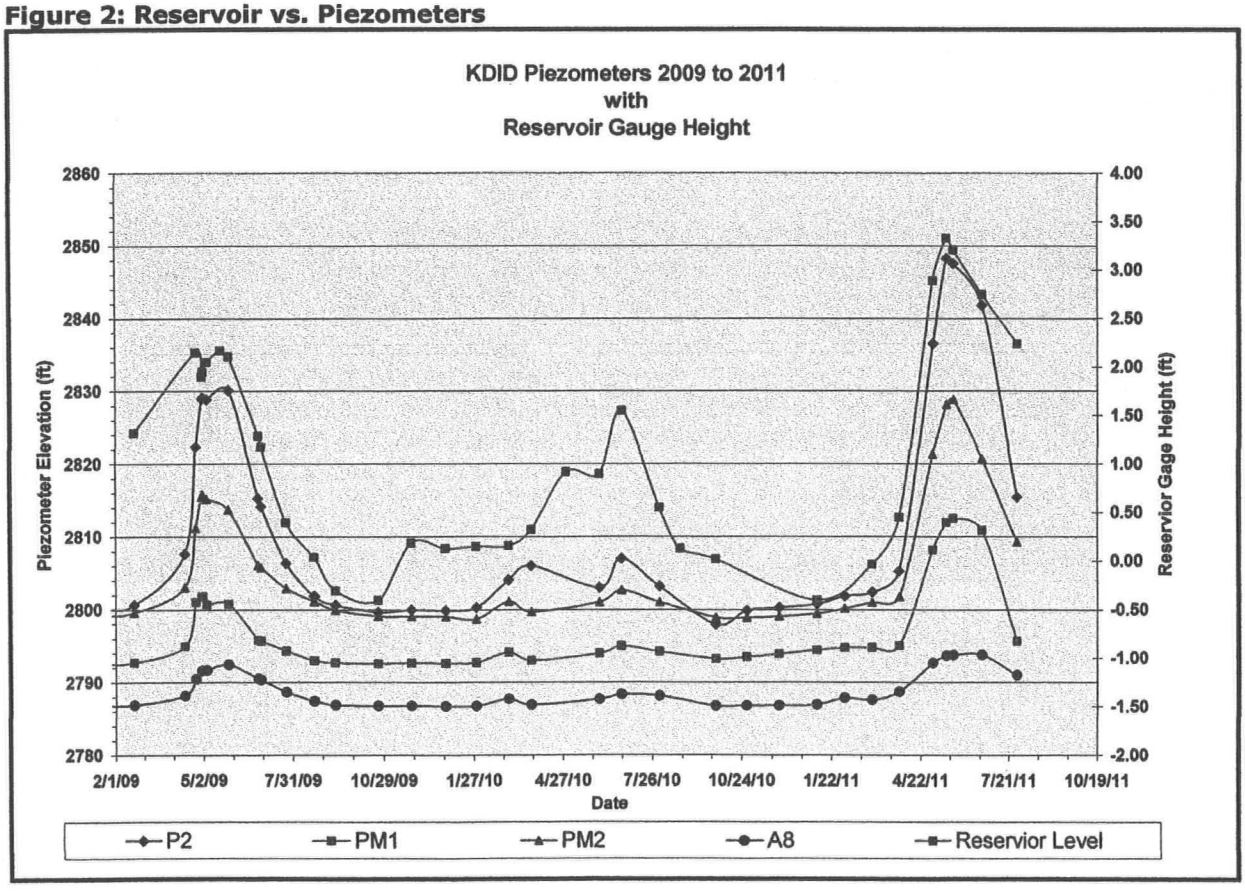
It has been previously assumed that the inflow into the reservoir and through the tailings would modulate the fluctuations of the surface water outflows and it was expected that outflows would remain fairly constant, or change more slowly than inflows. Instead, what was observed is the daily reservoir level fluctuations, although small, are seen in the outflows with little or no measurable lag time between inflow fluctuations and outflow response; which was also unexpected. This relationship will be closely monitored in the future to expand on these findings.

3.4 Reservoir

The reservoir has continued to decline in response to reducing inflows and prolonged spillway flows this spring. Review of past data reveals that the reservoir is at an elevation approximately 1.5 feet higher than in past years at this time. The reservoir was measured at 2.24 feet on the date of this inspection and was 0.75 last year at this time. The reservoir was approximately 100 feet from the upstream crest of the embankment on the date of the inspection; which is typical.

Solinst® transducers that were installed onsite on May 25th 2011 have recorded data at 30 minute intervals since being set and all transducer data was downloaded as part of this inspection. Figure 2 below shows the updated reservoir levels versus piezometer levels that now includes this years Solinst transducer data.

Figure 2: Reservoir vs. Piezometers

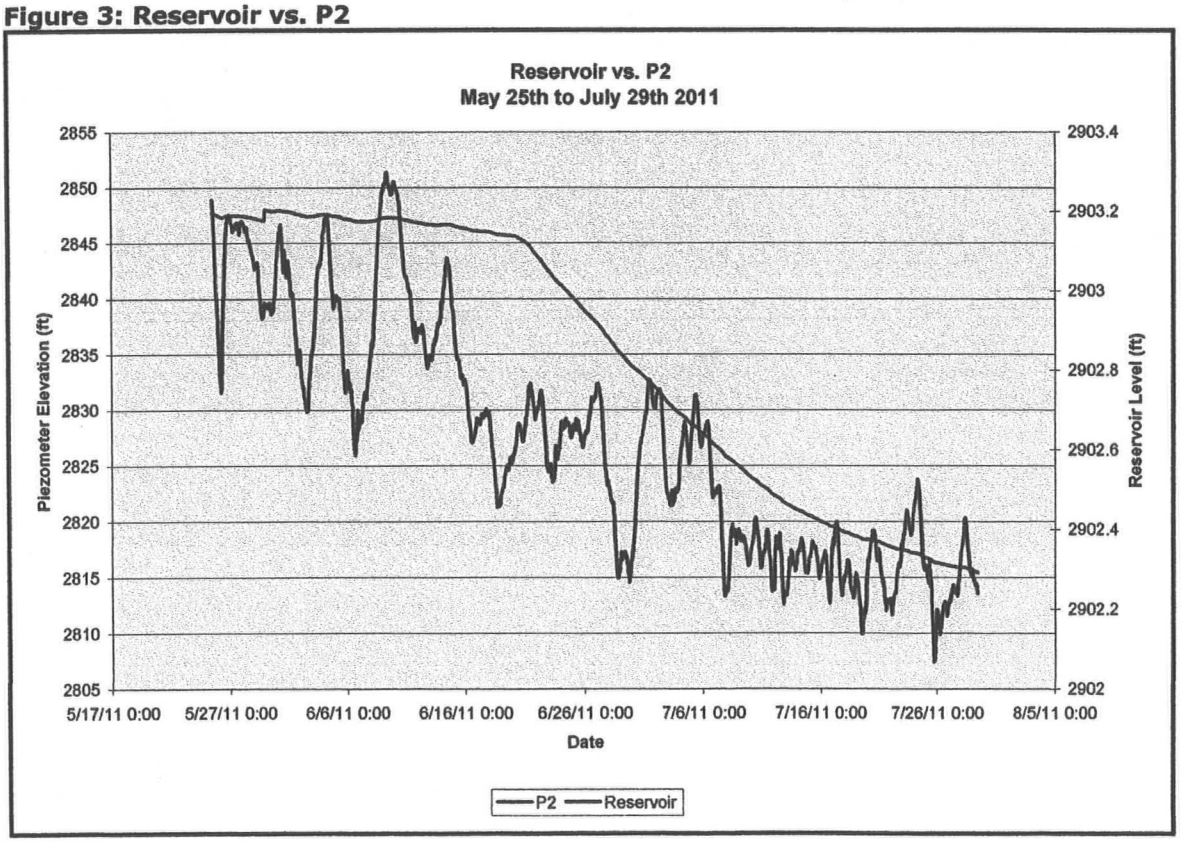


As shown above, during 2009 and 2010 there is a similar rise in reservoir and piezometer levels although there are some areas where either reservoir rise does not correlate to piezometer change, varies or lags behind. However, in 2011, there was observed to be an immediate and dramatic response between the reservoir and the piezometer levels. It is noted that the rise may be attributed to the more precise data collected by the transducers. It is also noted that the annual precipitation, and thus inflows and reservoir levels, where higher than previously observed.

In 2009 reservoir levels rose throughout the winter and reached a staff gauge reading of 1.32 feet in early May before there was a significant response in the embankment piezometers. In 2010, reservoir levels rose to 1.55 feet in late February before there was an observed rise in piezometer levels. In 2011 we observe the reservoir start to rise with the piezometers responding almost instantly to the rising reservoir levels. We also observed that piezometer rise continued until the peak inflow conditions and then immediately started to fall. Therefore, at least for 2011, we note that as soon as reservoir levels rose above the base winter level and started to be able to be read on the staff gauge, at a reading of 0.00 feet, there was an immediate and significant reaction in the piezometers to rising reservoir levels with no observable lag time.

Figure 3 below shows a comparison of reservoir levels and piezometer P2. As can be seen, water levels in piezometer P2 stay relatively constant until June 21st and then start to decline rapidly. Chapman Construction noted that the only observable anomalies during that time frame was that water that had previously flowed over the north end of the reservoir access road to a small side pond on the west side of the access road had ceased to flow and the side pond had rapidly drained.

Figure 3: Reservoir vs. P2

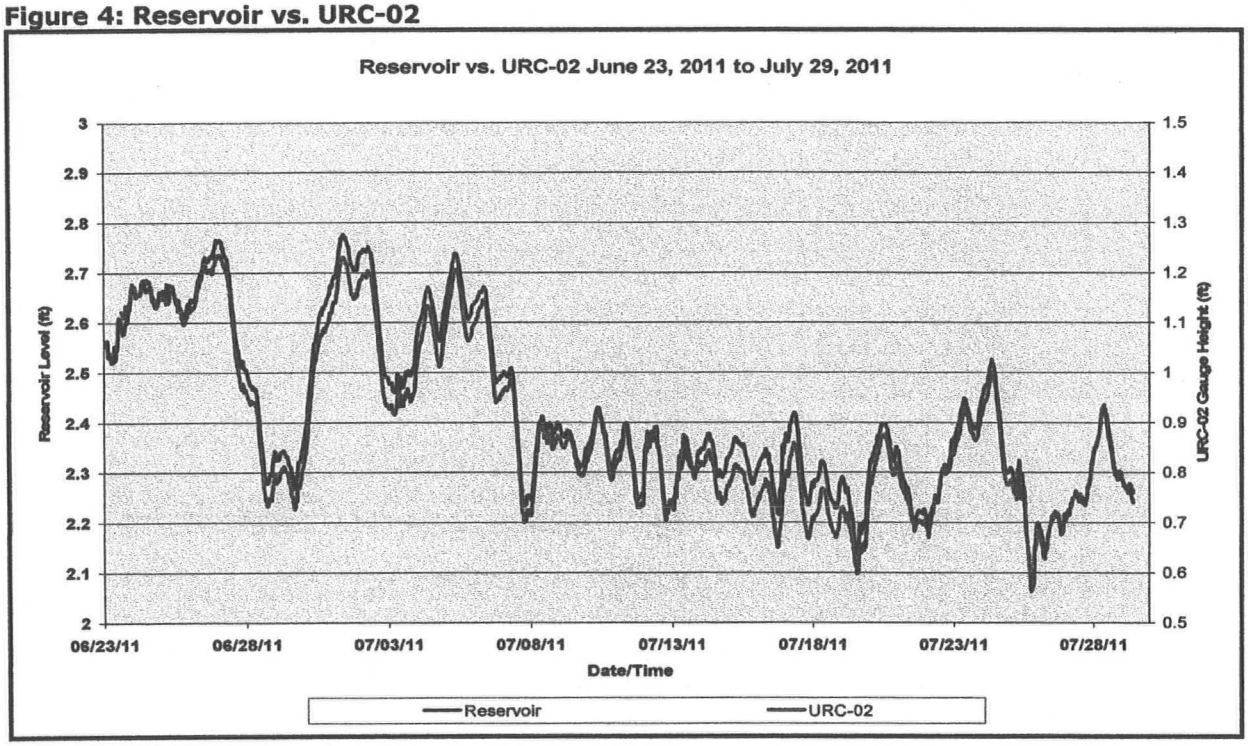


The potential to have an open drain source in the side pond area is worth investigating as reservoir levels have been shown to affect foundation pressures. It may be that when the side pond is full it may provide a source of pressure to the foundation drains.

Also shown in the figure above, is a small upward spike in the piezometer reading on May 29th. There was no seismic event at that time and the continual fluctuations of the reservoir levels give no indication why there was a sudden rise when all trends are falling. The spike in water level is discussed in the piezometers section below.

The variation in reservoir levels recorded by the Solinst® transducer was also surprising and showed much more fluctuation than was expected. What was even more dramatic was to make a comparison between the reservoir and the Upper Rainy Creek-02 (URC-02) transducer data which is shown in Figure 4 below.

Figure 4: Reservoir vs. URC-02



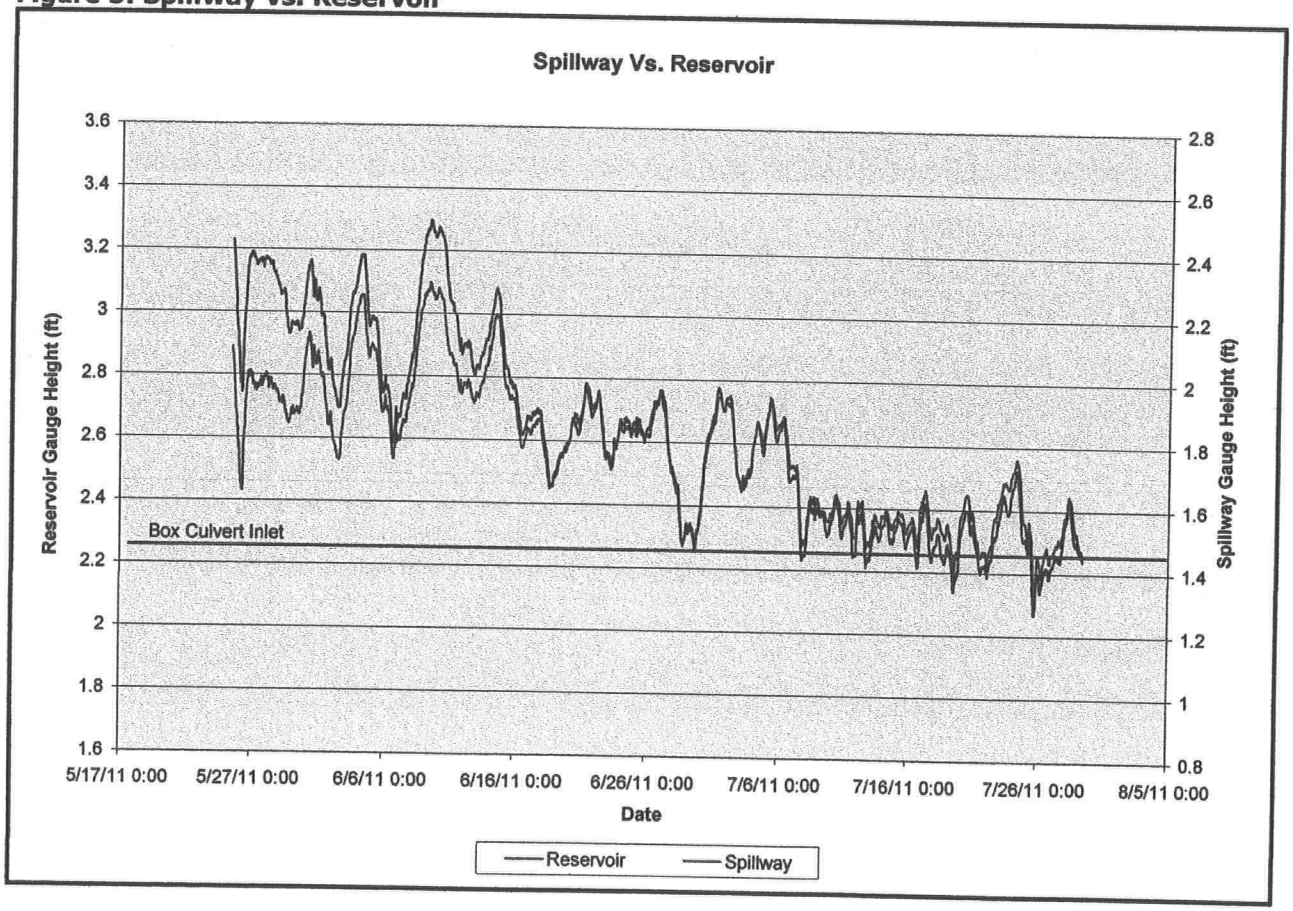
As shown, the reservoir reads slightly higher than URC-02 which is expected because of the Fleetwood Creek inflows. It was assumed that the reservoir would attenuate the inflows and reservoir level changes would be dampened but transducer data shows that the inflow-reservoir level lag times of less than half an hour, which was the recording interval. This data shows that the water flows into the impoundment and to the spillway quicker than anticipated. This data indicates that there is likely a loss of storage capacity in the reservoir. BHI has noted that the cattail growth on the margins of the reservoir have increased and it is likely that the reservoir is somehow experiencing eutrophication possibly from the waterfowl, and the increase in cattails is creating a loss in reservoir, and thus flood routing, capacity. It is also likely that the reservoir has lost capacity from siltation. Inflows, reservoir levels and spillways flows will be tracked in 2012. The reservoir depth will be checked during the winter of 2011 and 2012 when ice allows for easier access.

3.5 Spillway

The principal spillway was not running on the date of this inspection but water was up to the lip of the box culvert in the entrance channel. Jeremy Peterson of Chapman Construction stated that the spillway was still running yesterday (July 28th). Based on this information and the data on the first day the spillway ran, the spillway ran for 108 days this spring. The period was longer than any other runoff witnessed by BHI. As stated above, black deposits noted in the spillway channel this spring indicate sediment is being transported through the principal spillway; it has not been observed in the spillway before this date. Chapman Construction has brushed areas of deposits away to make joint repairs in the chute this summer and stated that the deposits, once dried, are hard to clean which tends to indicate an organic sediment.

Transducer data also recorded inflows in the earthen spillway channel above the entrance to the box culvert. As expected the spillway and reservoir levels tracked closely, following a similar inflow-outflow pattern. Variations in reservoir levels and spillway levels are assumed to be caused by the backwater profile above the box culvert entrance to the principal spillway. At high flows the spillway has a lower flow profile for a given reservoir level than at the lower flows. Figure 5 below show the relationship between the reservoir staff gauge and the spillway staff gauge.

Figure 5: Spillway vs. Reservoir

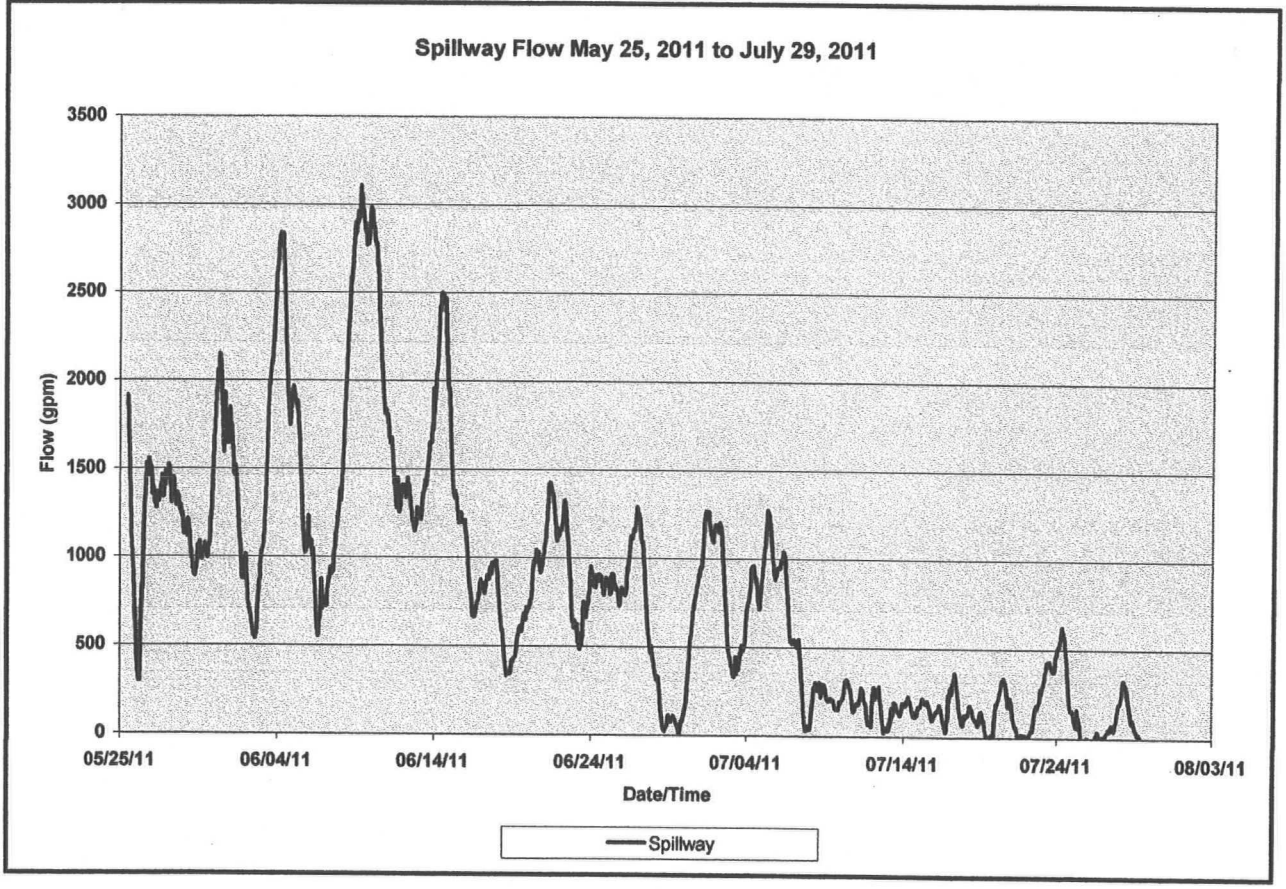


The red "Box Culvert Inlet" line in the graph above shows the level at which water starts or stops flowing into the box culvert spillway. As shown above, the spillway stopped intermittently since the 8th of July. Based on the elevation data it is possible

that the spillway may continue to run sporadically for a few more weeks until fluctuations in reservoir levels permanently remain below the box culvert entrance channel inlet.

The staff gauge readings in the spillway were used to develop a flow rate versus staff gauge rating table using one on-site flow measurement, the measured channel slope, a measured cross section and the program FlowMaster®. The measured flow was used in the FlowMaster® program to solve for the Manning's Roughness coefficient which was adjusted for roughness changes at different elevations in the channel based on best engineering judgment. A final rating table was developed and used to graph the total spillway flows from May 25th, 2011 until the date of the inspection. The graph of the data is shown in Figure 6 below. Based on the data from the transducer levels and the rating table, approximately ## AF of water flowed through the spillway in 2011. 236

Figure 6: Spillway Flow



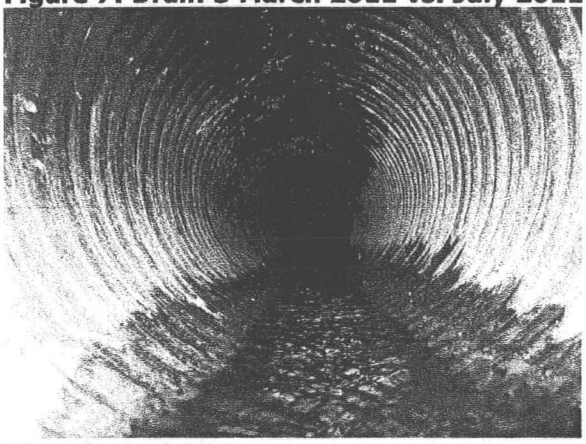
3.6 Drains and Drain Flows

Drain flows have declined over the past month in response to the end of the runoff season and drier weather patterns but drain outflows continue to exceed reservoir inflows. Outflows at LRC-01 this month were measured at 1262 gpm compared to reservoir surface water inflows of 640 gpm. Drain flows are expected to decline as the reservoir inflows and reservoir level recedes to normal.

There were still flows in Drains 1 and 2 during this inspection but they have notably dropped off since last month. Drain 1 is expected to stop flowing before the next inspection. As drains 1 and 2 have not run this late in the season during the times BHI has observed the site, Chapman Construction has been instructed to keep an eye on drain 1 when onsite to determine the date it stops flowing. All drains show a continued decline.

During this inspection a pile of newly deposited gravel was noted near the outlet of drain 3 that was not obvious in previous months. Also noted was an increase in gravel material deposits inside drain 3. In addition to the gravel transport noticed below drains 10 and 11 last month, it is readily apparent that gravel drain material and possibly embankment material was transported through the drains this spring by the higher flows. Figure 7 below shows the difference in gravel deposits from March to July of this year.

Figure 7: Drain 3 March 2011 vs. July 2011



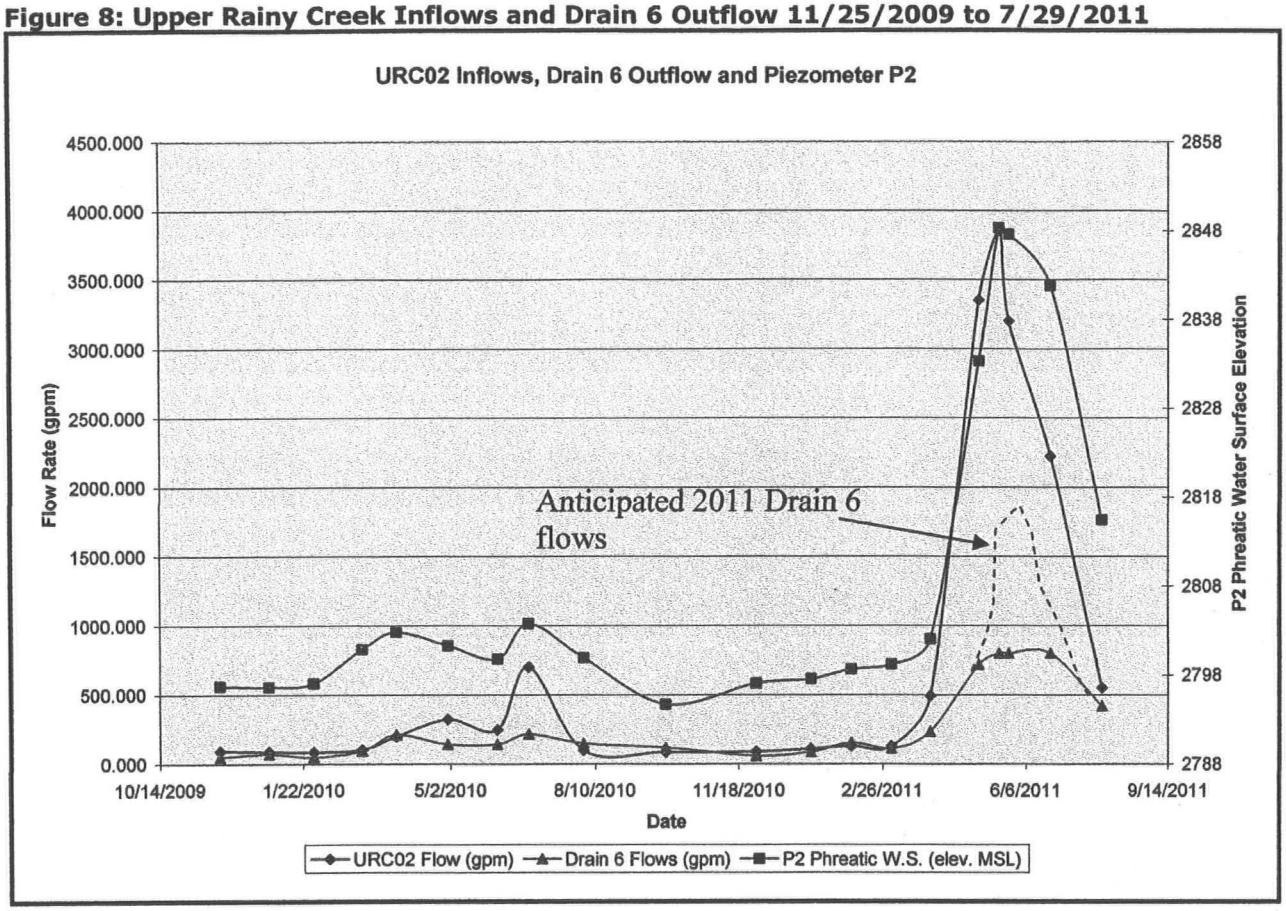
March 4, 2011

July 29, 2011

Before this spring and under normal operating conditions, material transport through the drains was not obvious or noted during site inspections. This transport of material will be monitored closely to determine if transport still continues under normal conditions.

Drain 6, the main toe drain, has decreased flows in the past month and was recorded at 421 gpm on the date of this inspection. Drain 6 had steady flows near 800 gpm from May 18, 2011 to June 23, 2011. The flows for 2011 were approximately 300 gpm less than the highest recorded flows in May of 2008. As discussed in earlier reports, data this spring suggests that drain 6 may have lost some capacity since 2008, which may be putting higher stresses on other drains in the system which in turn may be the cause for the gravel and sediment transport. Figure 8 below compares drain 6, Upper Rainy Creek inflows and piezometer P2 levels from late November of 2009 through the end of July 2011.

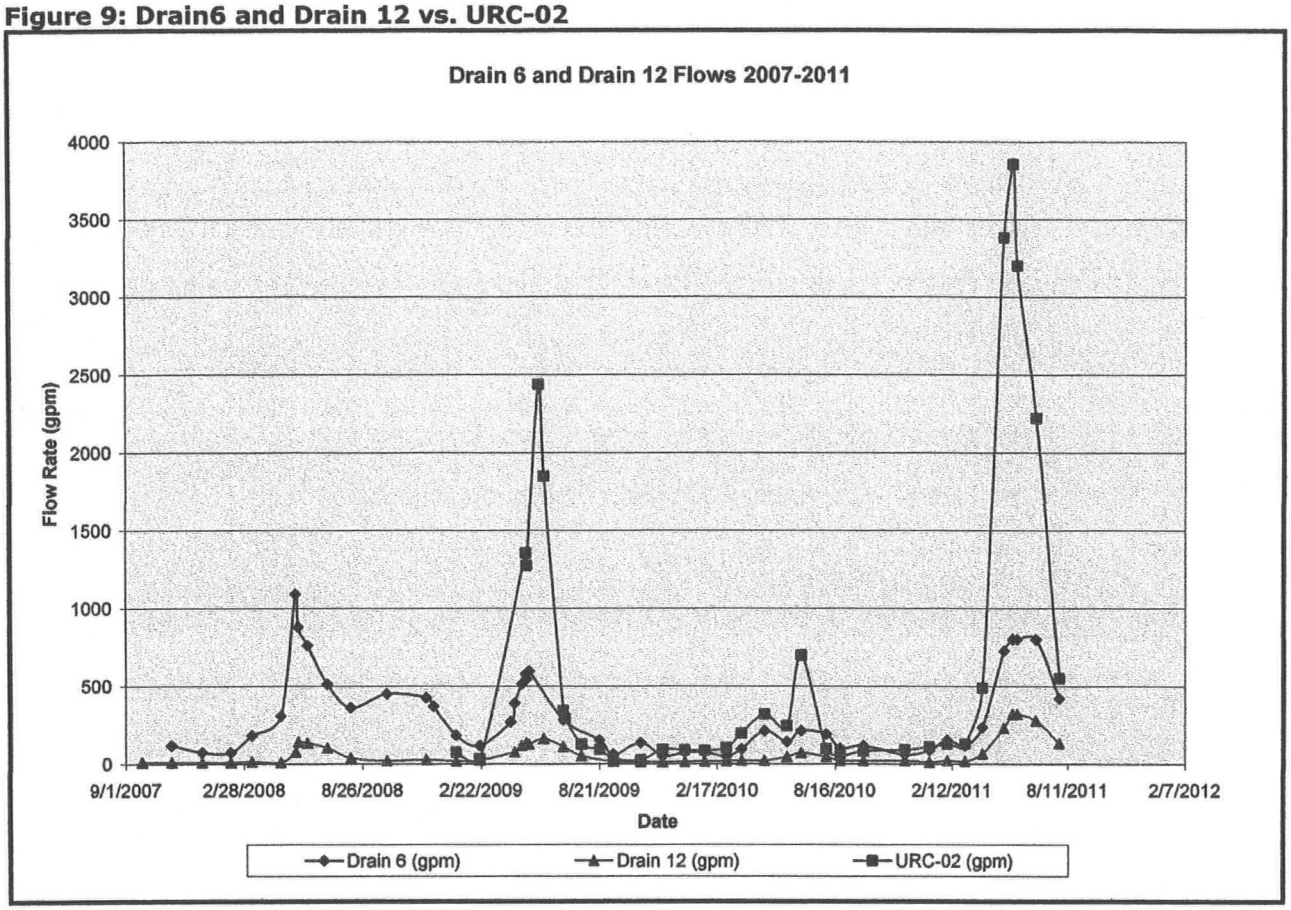
Figure 8: Upper Rainy Creek Inflows and Drain 6 Outflow 11/25/2009 to 7/29/2011



The graph above shows the flat, steady flow in drain 6 after the middle of May that is either declining capacity or a flow capacity limit in drain 6. It is noted that BHI observed flows near 1,100 gpm in 2008 so it would be expected that drain 6, if it followed the rise in inflow and reservoir levels normally, should have peaked near 2,000 gpm, as shown in the projected line in Figure 8 above.

Drain 12 has decreasing flows this month and was recorded at 112 gpm down from 255 gpm, a decrease of 143 gpm or 56%, since the June inspection. The decrease has allowed substantial drying of the saturated area above the drain as well as a reduction in seepage flows around the whole drain 12 area as previously reported. Nearly all flows are going through the W12 weir at this time rather than over topping as was reported in June. It was noted during this inspection that sustained high flows have caused the weir to shift and there is some leakage around the sides of the weir but are estimated at less that 5% of the total flow. Figure 9 below shows an updated comparison of URC-02 inflows and drains 6 and drain 12 outflows.

Figure 9: Drain6 and Drain 12 vs. URC-02



As can be seen, inflows and outflows, as reflected in drain 6 and drain 12, all correlate closely.

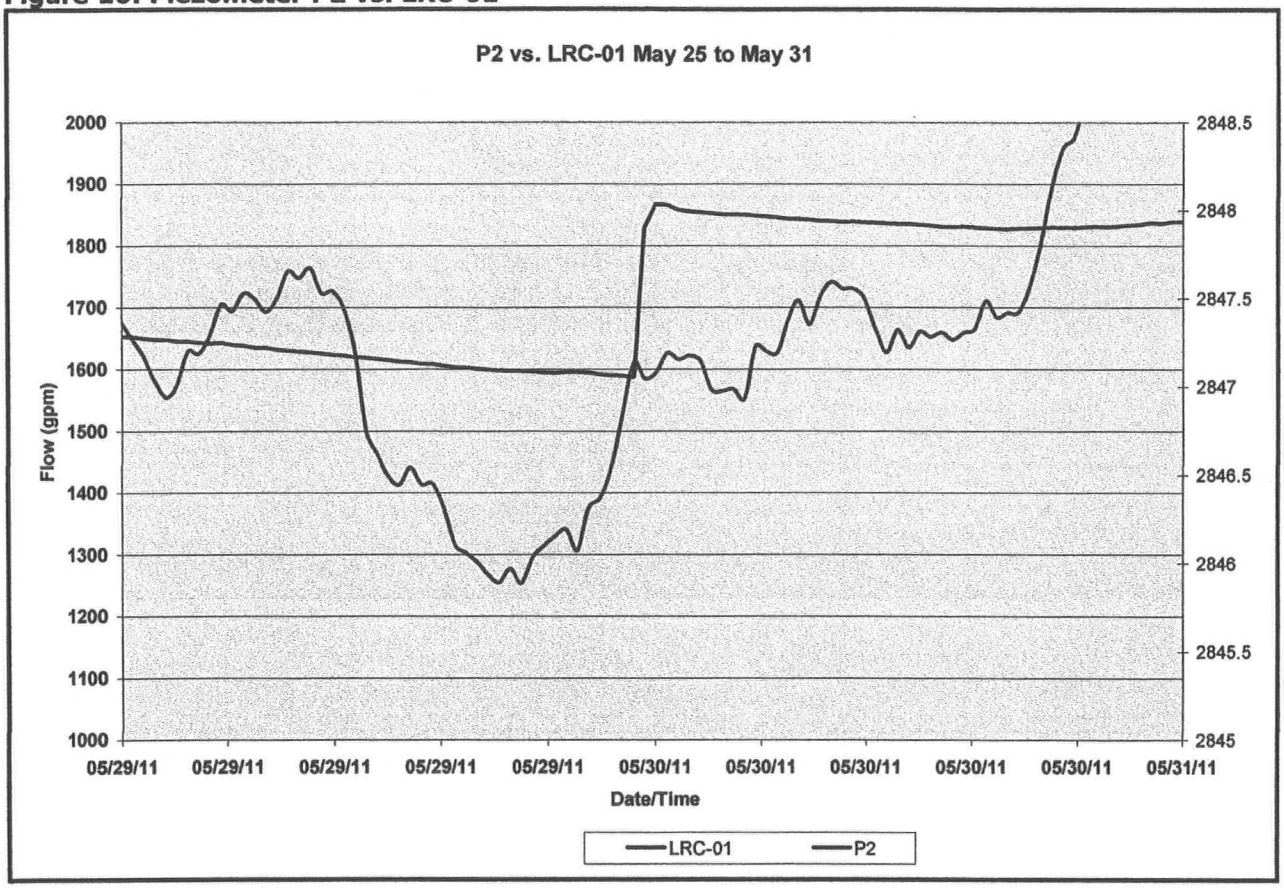
There has been significant vegetation growth around all the drains this year due to the wetter conditions. The vegetation is good for ground stability but has been obstructing the observations of the seepage, especially at the toe of the dam. The root development of the vegetation is also significant this year and has caused a blockage in drain 12 that had to be cleaned. Weeds in Flume 7-8 rerouted flows around the flume and caused water to backup into the drains.

3.7 Piezometers

Piezometer readings have continued to decline since peak measurements were recorded on May 18, 2011; but, continue to be higher than any previous reading at this time of year. With the continued sharp decline of inflows and piezometer levels, piezometer levels are expected to drop to normal expected levels over the next month.

As discussed above transducer data from piezometer P2 indicated an upward spike in piezometer levels and a correlation between piezometer levels and the pond area west of the access road. The data from piezometer P2 was plotted with LRC-01 inflows to see if an increase in inflows may have spiked the piezometer level. Figure 10 below shows the flow versus piezometer level comparison.

Figure 10: Piezometer P2 vs. LRC-01



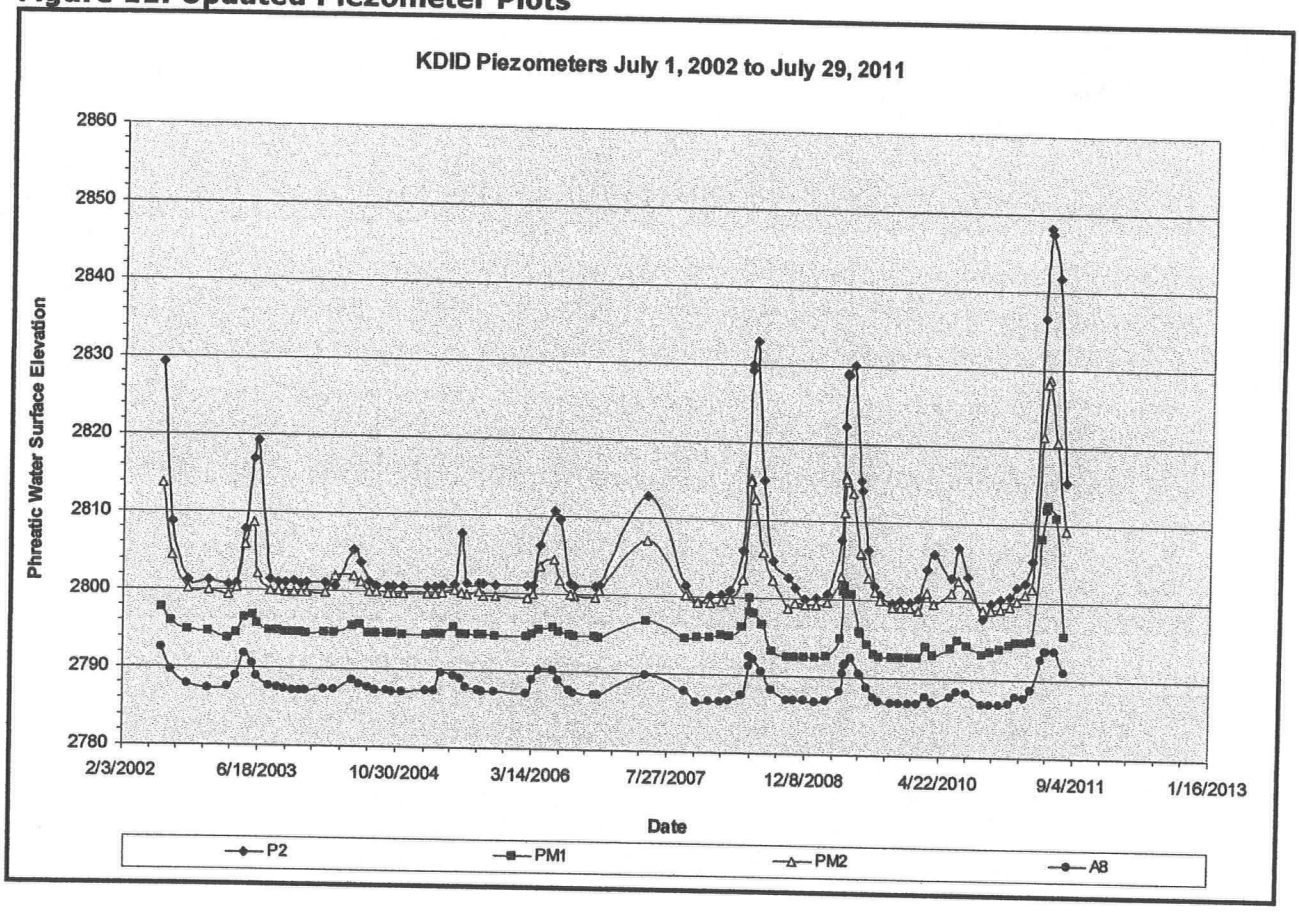
The graph above shows that there was a decrease in outflows at LRC-01 at the same time there was the increase in piezometer water level in P2 which may indicate a possible void collapse and loss of drain capacity as was noted in last month's inspection report. Upward spikes in an otherwise relatively steady piezometer level are unusual so the piezometer data and drain flow data will need to be tracked closely to see if the same type of spikes and loss of drain flow occur again.

The other item noted in the P2 transducer data last month was the decline of piezometer P2 after the side pond area west of the access road became disconnected from the reservoir, as discussed above. During the PFMA process it was noted that a decant tower had operated in the area and is now abandoned. This structure may now provide a drainage path for the pond. The other possibility is that the pond overlies the gravels and boulders noted as being in the right abutment area and they may be feeding drain flows.

As discussed above there is a continual decline of reservoir levels but not a noticeable break to correlate to the change in piezometer elevation. The only noted change was that after June 16th there is no water flowing over the access road that filled the pond from the reservoir. The graph indicates that the pond area is filled somewhere between a reservoir level 2.68 to 2.73 feet on the staff gauge. The reservoir, side pond and piezometer levels will need to be closely monitored in the spring of 2012.

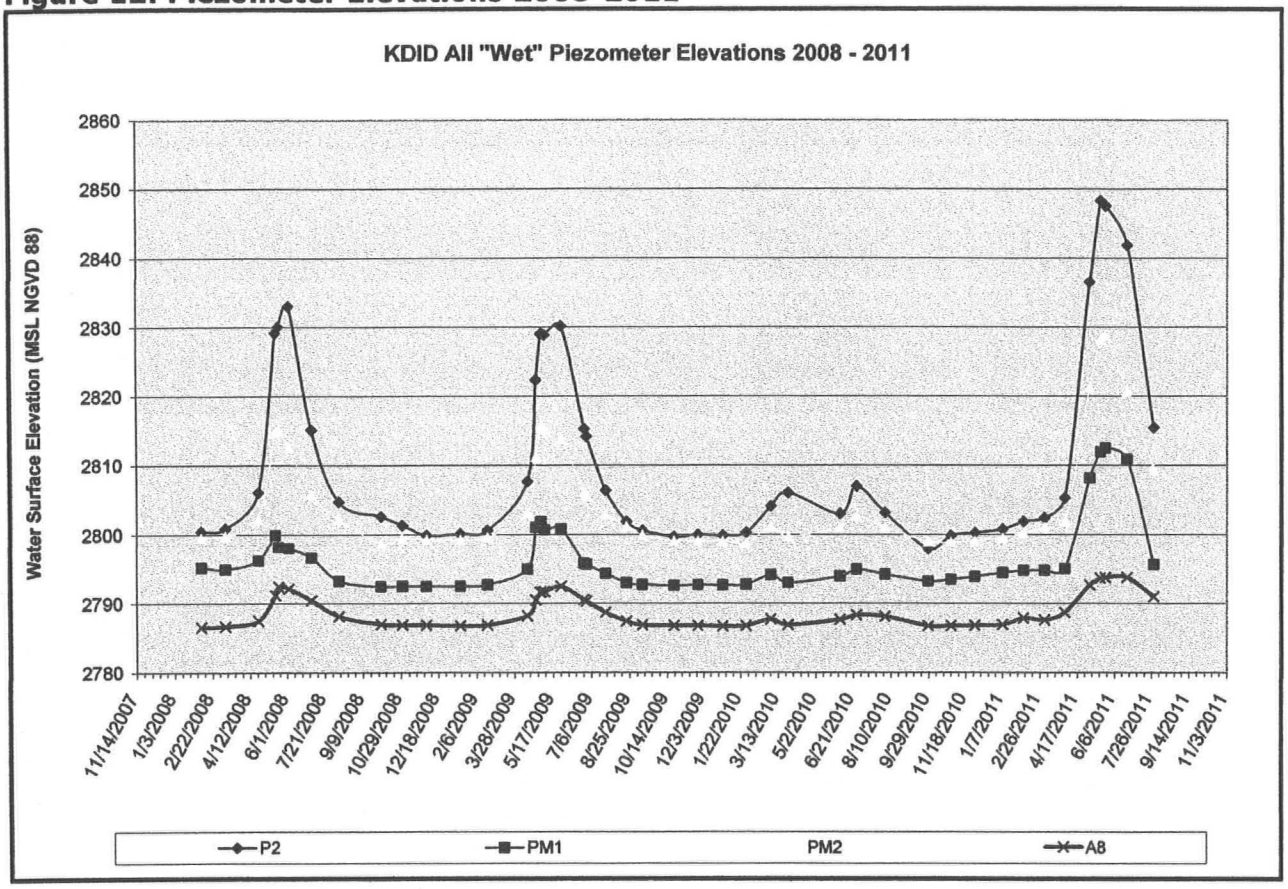
The updated piezometer plots from the 2002 data provided to BHI to the date of this inspection is shown in Figure 11 below and shows the seasonal peak levels that have occurred since 2002. It is to be noted that the peak in piezometer levels is consistent each year but the date of the peak and the duration of the peak vary fromyear to year. The peak for this year occurred on May 18, 2011 and there was not a second peak; the levels have been declining since.

Figure 11: Updated Piezometer Plots



A graph of the same piezometers from Figure 11 above, graphed over a shorter period of time, is shown in Figure 12 below. The graph below represents just the piezometer data collected since BHI began onsite inspections.

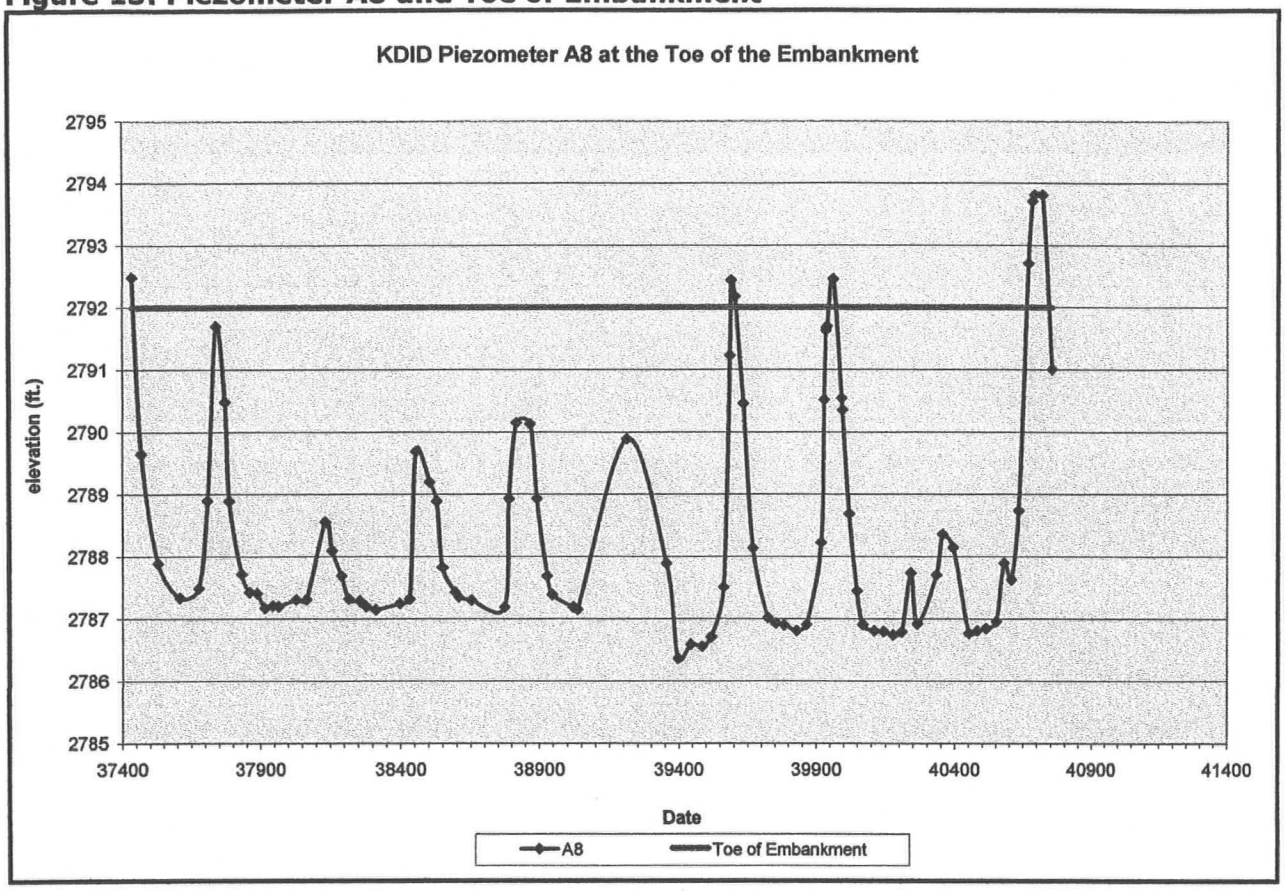
Figure 12: Piezometer Elevations 2008-2011



The graph above also shows that the piezometer water levels observed this year are the highest recorded to date. At this time all seasonally wet piezometers are still higher than normal for this time of year but are falling normally. It is the opinion of BHI that the higher piezometer levels, and thus higher pore pressure in the drain system, may be directly correlated to the increase in gravel and sediment transport from the drains.

The water level in piezometer A8 has finally dropped below ground level and the ground surface has started to dry out in the saturated area at the toe of the dam and there is a decrease in overall seepage around the drains. Water was still noted seeping from the creek banks into lower Rainy Creek above the LRC-01 flume. Figure 13 below shows a graphic relationship between the water level in piezometer A8 and the elevation of the ground surface at the toe of the embankment. As can be seen, the increase in pore pressure at the toe is recorded by piezometer A8, and typically manifests as saturated ground at the toe and along the creek bank. This data shows that there is significant amounts of water that continue to flow through the gravels at the toe of the embankment and that there is a limit to the flow capacity. When the flow limit is reached, the water rises to the surface. This data indicates that higher flows will cause an increase in saturated ground at the toe of the dam.

Figure 13: Piezometer A8 and Toe of Embankment



3.8 HAZWOPER UPDATES

BHI continues to conduct safety meetings at the beginning of each inspection. All personnel have current certifications, equipment is maintained in good working condition and we have no personnel issues at this time.

The ATV and all equipment are washed with pressure washing equipment supplied by ER. Now that ER has resumed operations, decontamination will be conducted with their equipment and water until operations are discontinued in the fall. The equipment decontamination was completed successfully without malfunction, outer Tyvek suits were removed at the contamination reduction area. Personnel then proceeded to the support trailer to complete the decontamination and depart.

4. CONCLUSION

No anomalies in the alignment of the dam were noted. No bulges, surface erosion or other physical sign of failure were noted on the site. There has been some material transport through the drains and deposits of gravel and fine sediment or tailings in the stream channel below the drains. The sediment transport is assumed to be linked to the higher pore pressure observed. Sediment transport flows and pore pressure will be monitored in the spring of 2012.

The relationship between reservoir and piezometer levels this spring varies from other patterns recorded during the previous 2 years and is attributed to the increased groundwater flows through the foundation this spring.

Transducer records show that over the past month, outflows below the KDID embankment have exceeded surface inflows by 136 AF, which indicates that there may also be a groundwater inflow influence on the drains that is not directly attributed to the reservoir levels. This differs from past observations that indicate the piezometers are directly influenced by the reservoir and inflows and not by additional groundwater flows.

Review of transducer data this month also revealed that inflow, outflow and reservoir level changes are very closely tied with no measurable lag time between inflow and outflow changes. It was expected that inflows would affect reservoir levels and spillway flows, but it was expected that drain outflows would remain fairly constant as the reservoir level changes were relatively small on a daily basis. Instead we see immediate changes in outflows and piezometers that match the inflow levels. It had been previously held that water is routing through the tailings and that there is a lag time at the drain outflows. Data suggests inflows and outflows are tied in some way and should be investigated further.

Additional transducer and flow data did not positively confirm or eliminate the possibility of a void collapse on May 29th and the drain flows and piezometer readings returned to normal. However material transport this spring could certainly have been transported from a void collapse so it has not been ruled out and the P2 piezometer transducer will be examined for further level spikes to indicate void collapses on the project.

The rapid drop in levels of piezometer P2 beginning June 20th does appear to be connected to water levels in the side pond area west of the access road. The connection between the side pond and piezometer levies will be monitored in 2012

The spillway was not flowing on the date of this inspection while drains 1 and 2 were, although at reduced rates. This does not eliminate the seepage from the spillway as the source of flows in drains 1 and 2, as had been previously discussed, as water was still in the entrance channel to the spillway but it does make a direct connection to the concrete channel unlikely.

Given the volume of groundwater moving through the foundation this spring, BHI's preliminary determination is that there is a limit to the capacity of the gravels under the embankment. Once that capacity is reached, water appears at the toe of the dam near drains 1 and 2 and near drain 12. It is also speculated that the water levels in the gravel and the drain capacity flows appear to correlate closely.

Lastly, it is the opinion of BHI that drain 6 may either have a capacity limit, or the capacity of drain 6 may be declining. The peak flow rate needs to be monitored closely in 2012.

RECOMMENDATIONS

1. Re-video Drains 3, 10 and 11: These drains were noted as passing embankment material this spring. A video may provide insight to the amount of material that passed through the drain system and their current condition. Video may also indicate the presence of one or more voids in the embankment.

2. Investigate Pond Area: The rapid draining of the pond west of the access road should be investigated to determine first, why it occurred and second, what the repercussions of this event have on the long-term stability of the dam. Questions to be answered during this investigation are; where the intake structure is for the previously discussed Phase 5 decant tower and is it affecting the pond elevation and are there other sources feeding the pond and how are they related to fluctuation in the reservoir level.

3. Drain Flows and Piezometers: Continued monitoring of all previously established monitoring devices throughout the site in order to identify relationships in water level fluctuation and their potential impact on the dam. Continue to collect data with the Solinst® transducers and use the data to establish the following relationships.
    a. Inflows versus outflows
    b. Inflows versus piezometer levels
    c. Inflows, reservoir levies and spillways flows
    d. Total volume of inflow and outflow
    e. Determine lag time between inflows and drain outflows

4. Monitor sediment transport: Establish benchmarks near the drains that exhibit sediment transport and monitor stream channel cross section elevations. Currently drains 3, 9, 10, 11, and 12 are recommended for elevation monitoring

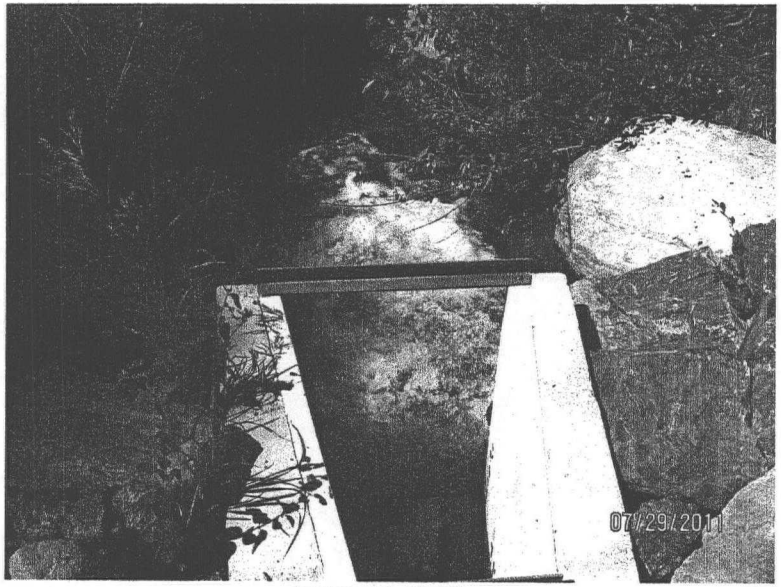
5. Safety: There are no safety issues at this time

6. Weeds: Establish a protocol for cutting or removing weed around the drains and toe of the dam

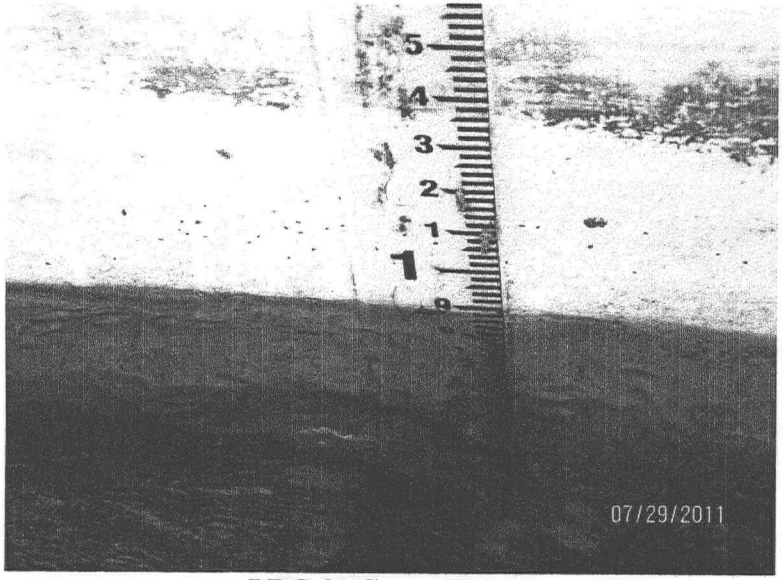
APPENDIX 1

SITE PHOTOGRAPHS

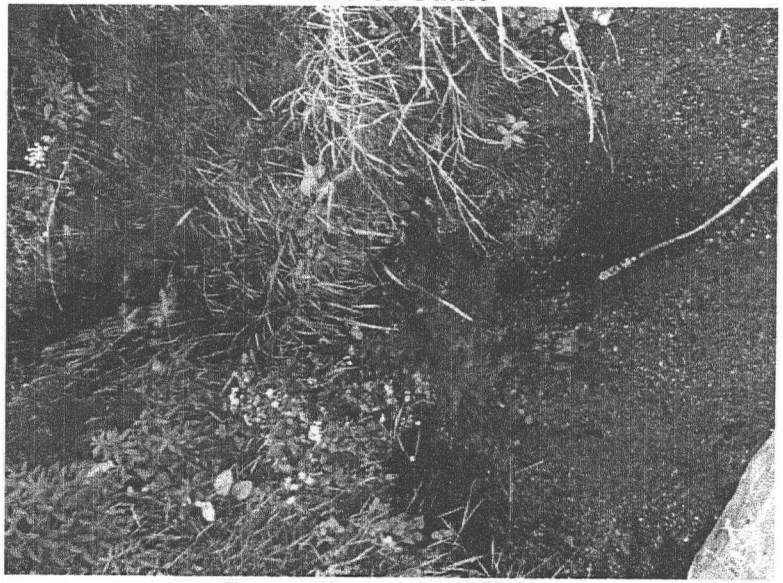
LRC-01 Inlet



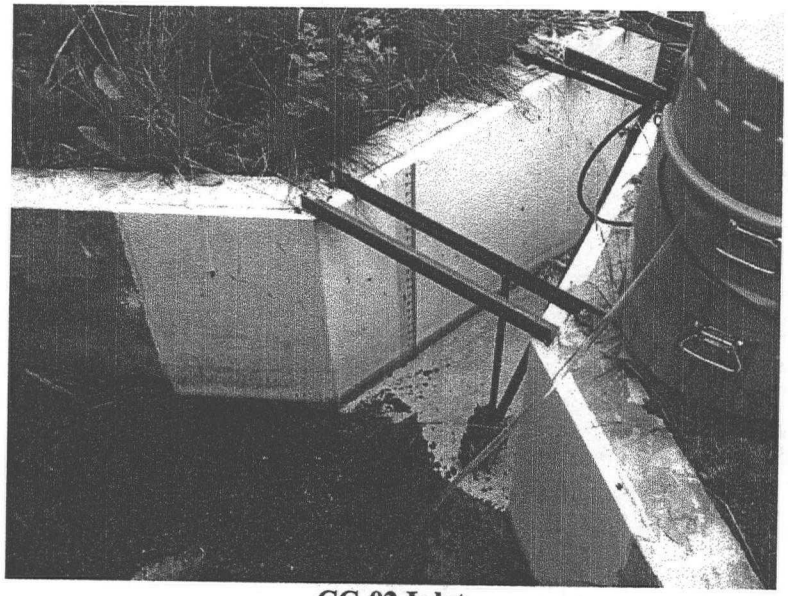
LRC-01 Outlet



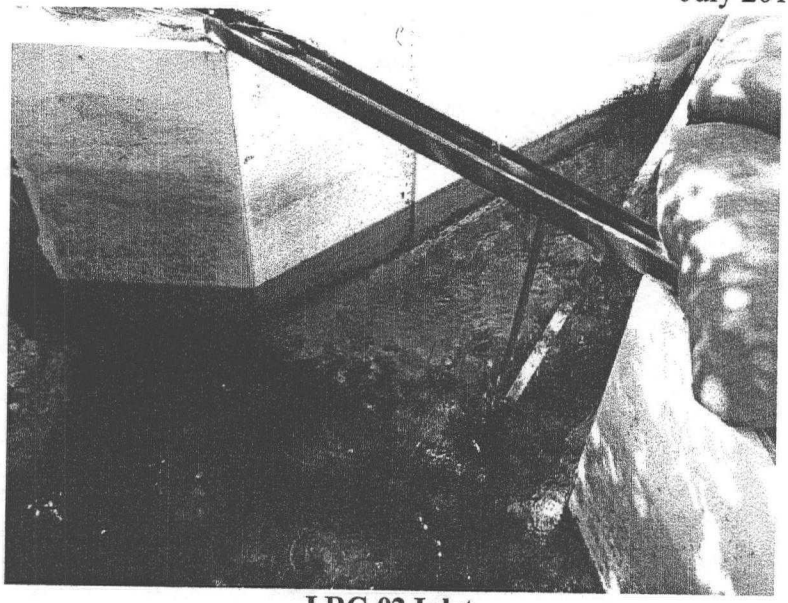
LRC-01 Gauge Height



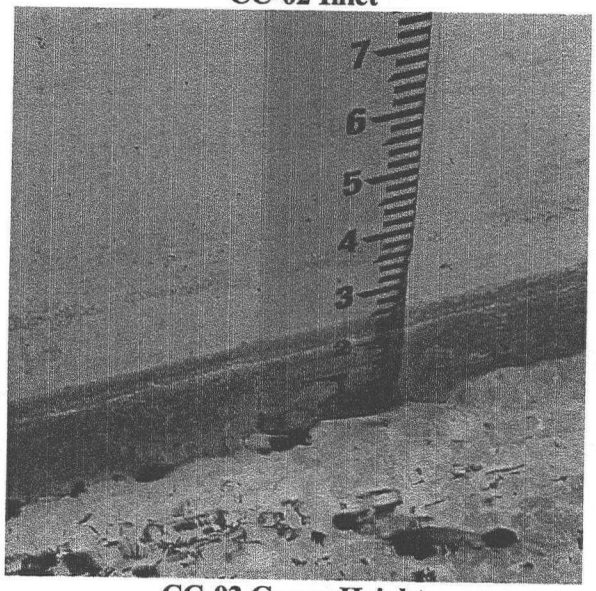
Carney Creek above Flume



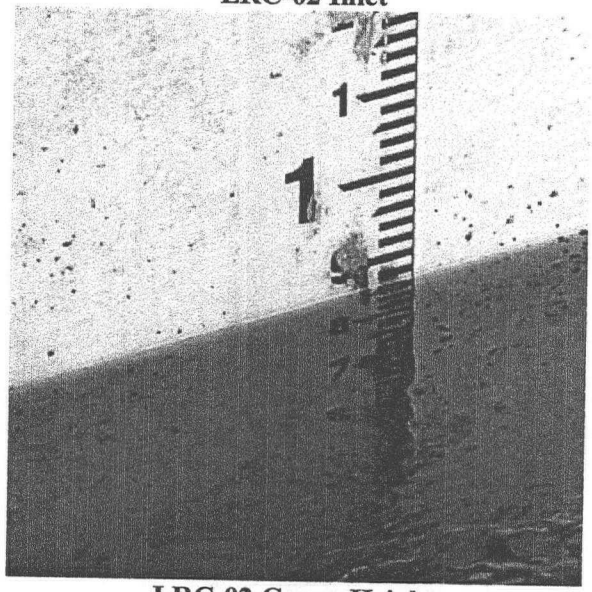
CC-02 Inlet



LRC-02 Inlet

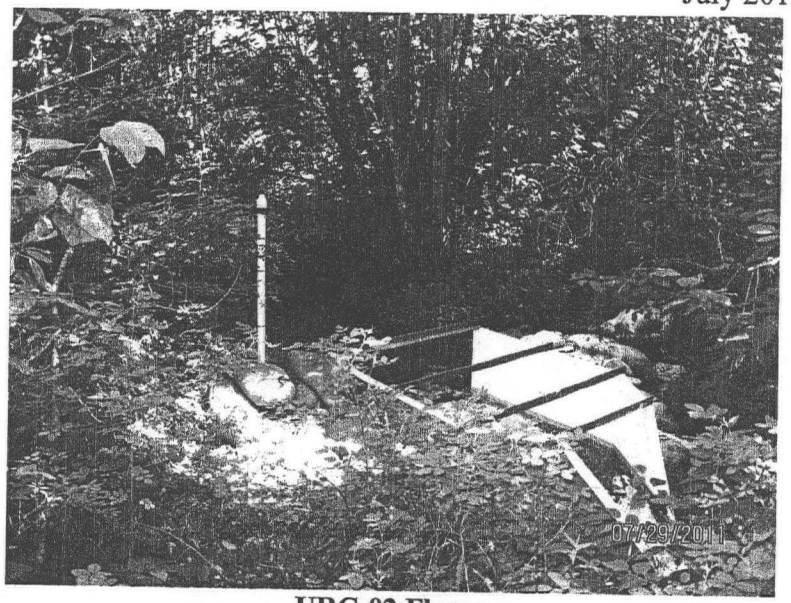


CC-02 Gauge Height

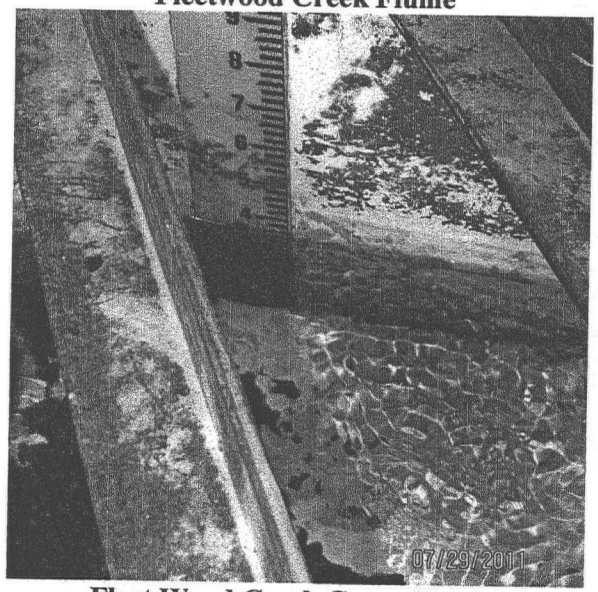


LRC-02 Gauge Height

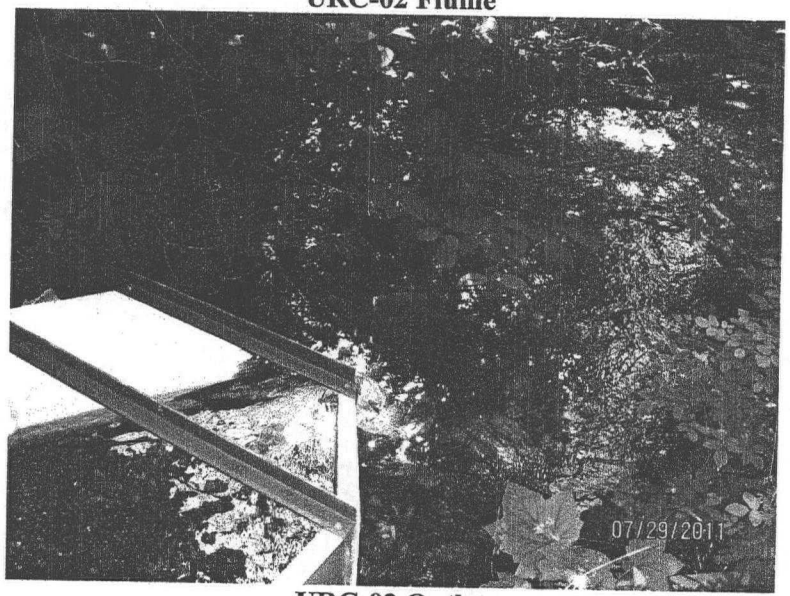
Fleetwood Creek Flume



URC-02 Flume

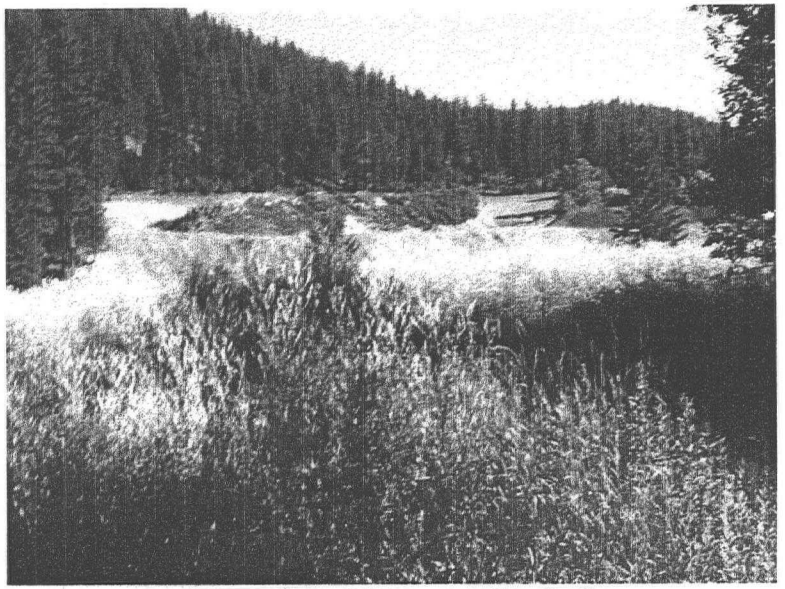


Fleet Wood Creek Gauge Height



URC-02 Outlet

URC-02 Gauge Height



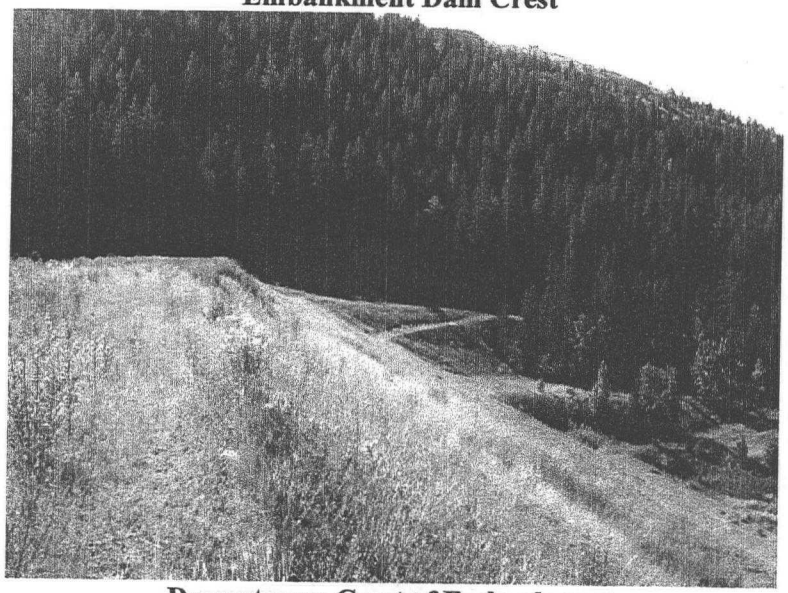
Contaminated Materials Stockpile

URC-02 Leakage

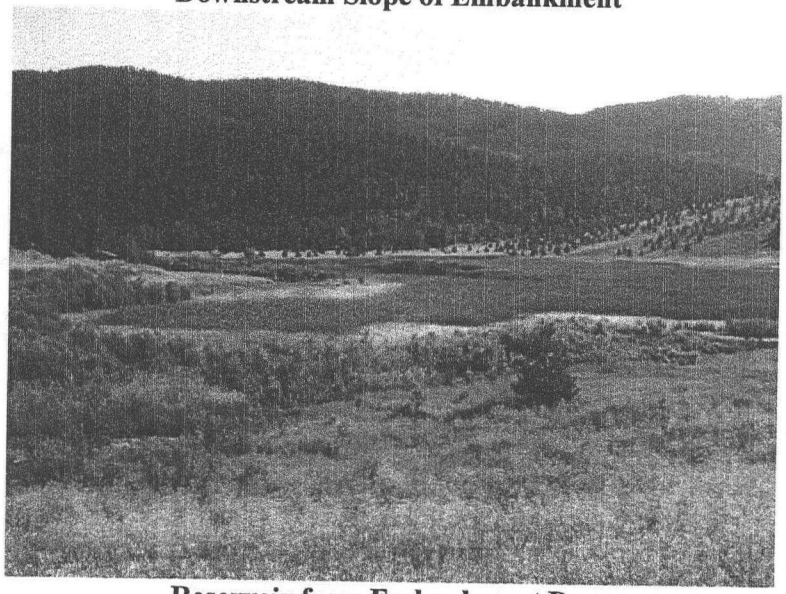
Heavy Vegetation Growth Onsite

Embankment Dam Crest

Downstream Slope of Embankment

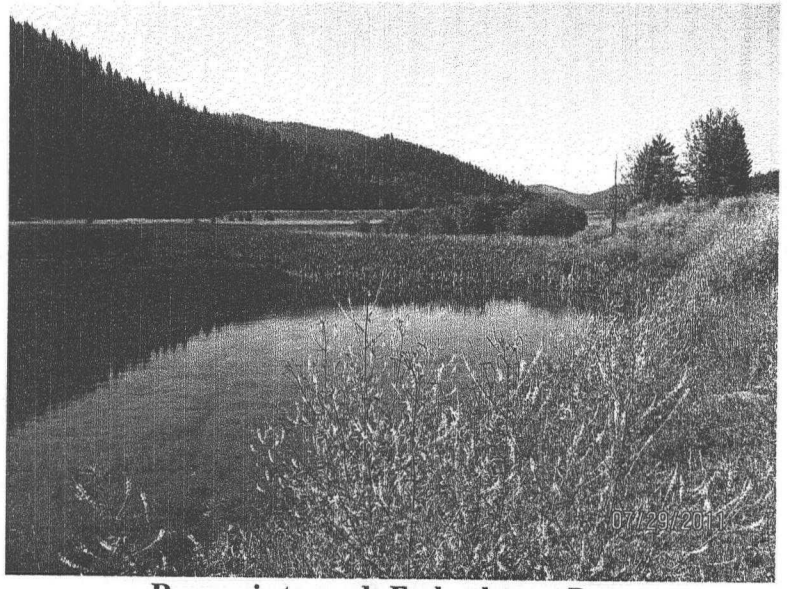


Downstream Crest of Embankment

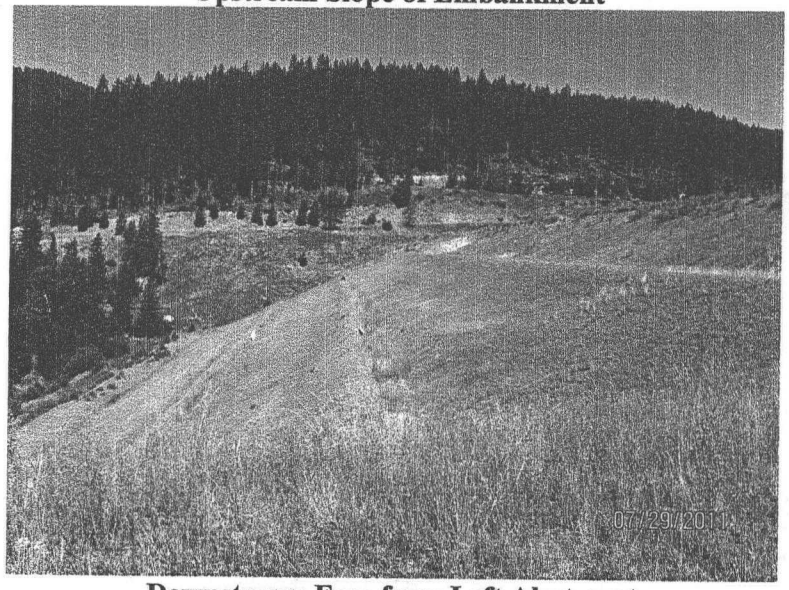


Reservoir from Embankment Dam

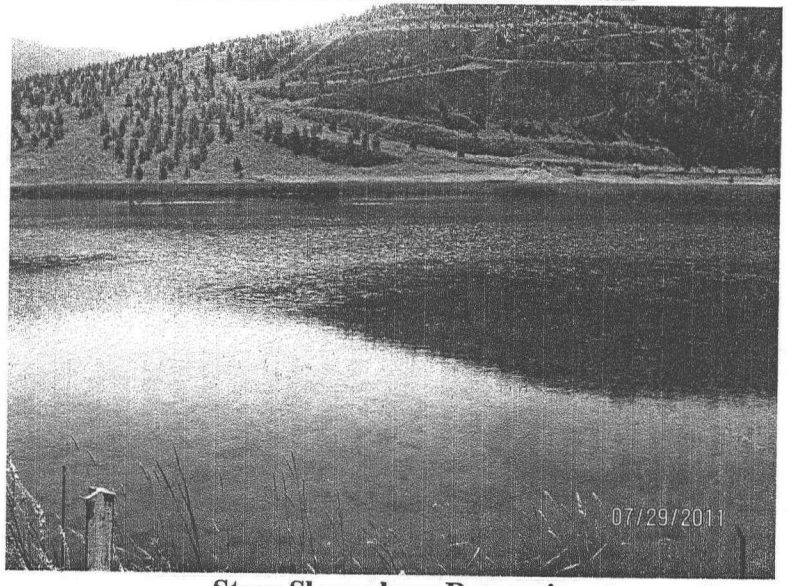
Upstream Slope of Embankment



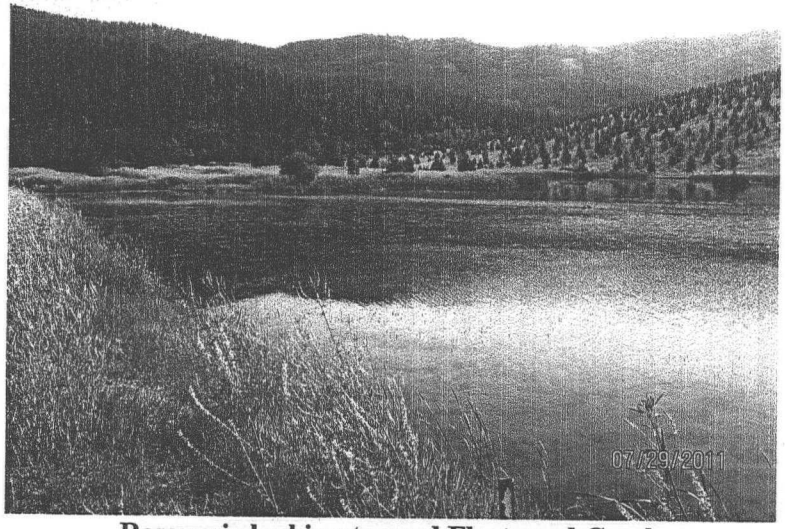
Reservoir towards Embankment Dam



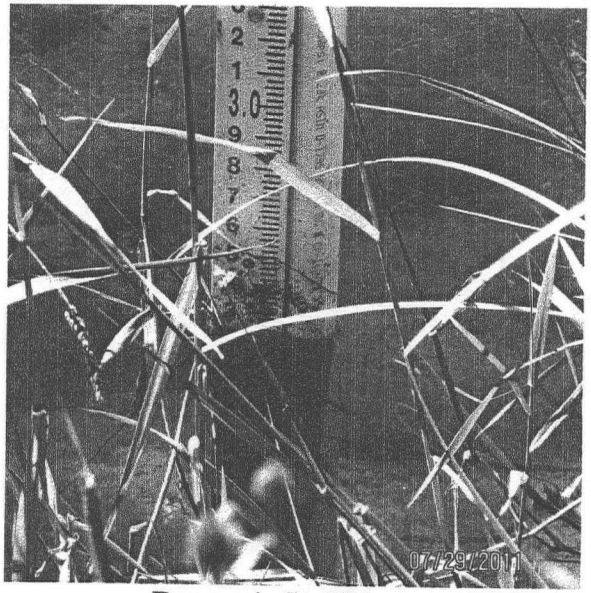
Downstream Face from Left Abutment



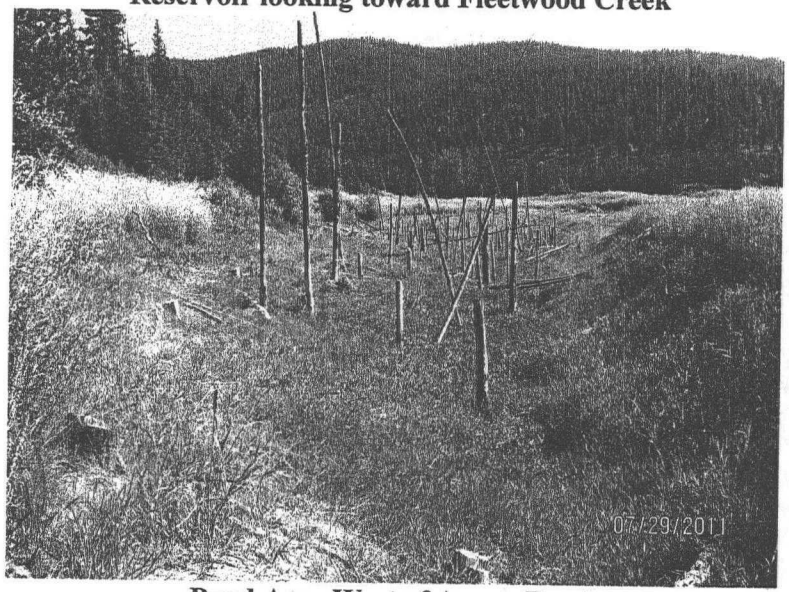
Steep Slope above Reservoir



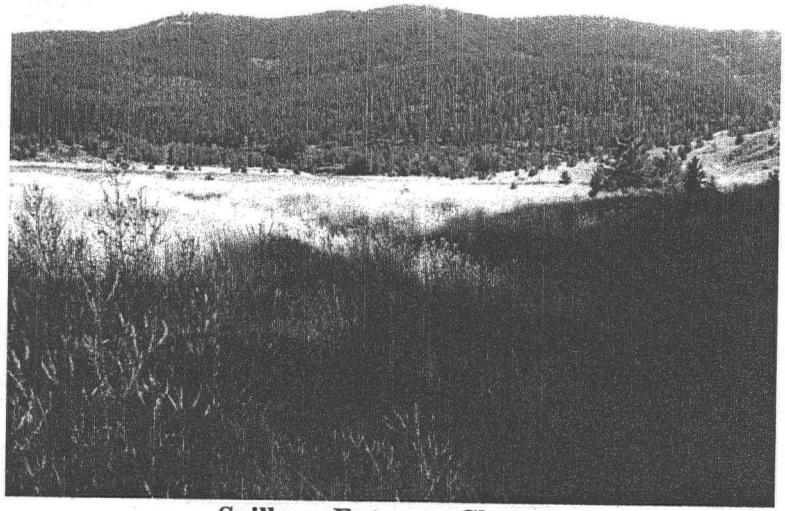
Reservoir looking toward Fleetwood Creek



Reservoir Staff Gauge

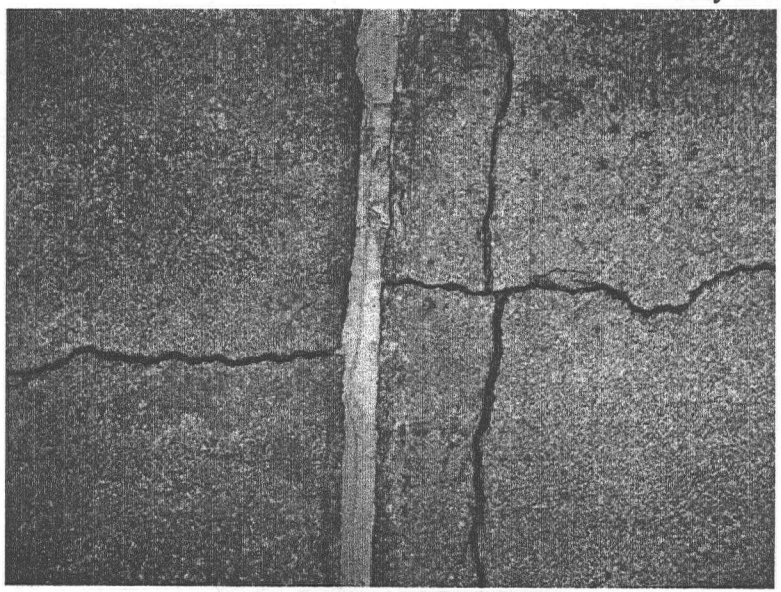


Pond Area West of Access Road

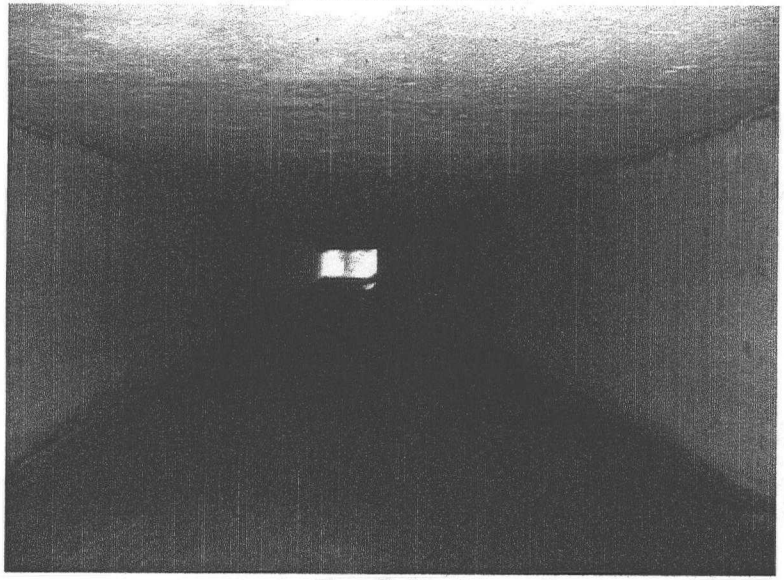


Spillway Entrance Channel

Box Culvert Entrance

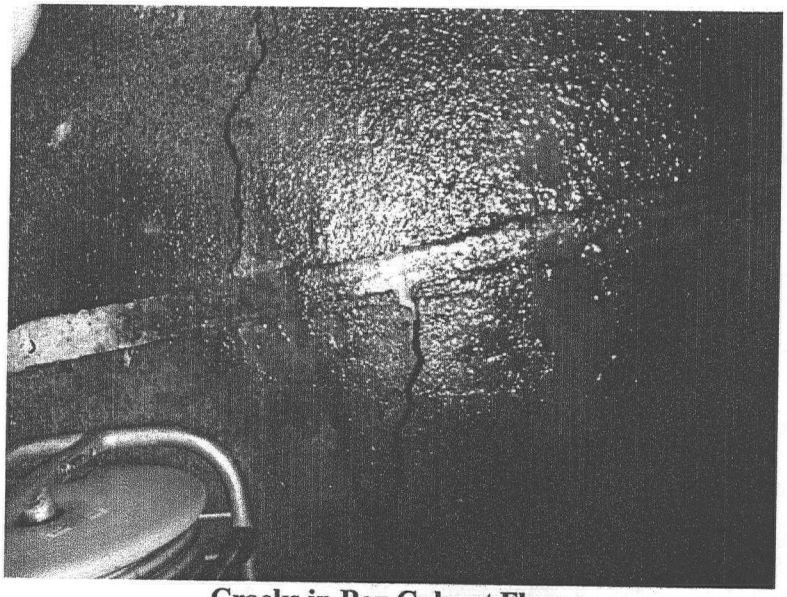


Cracks in Box Culvert Ceiling

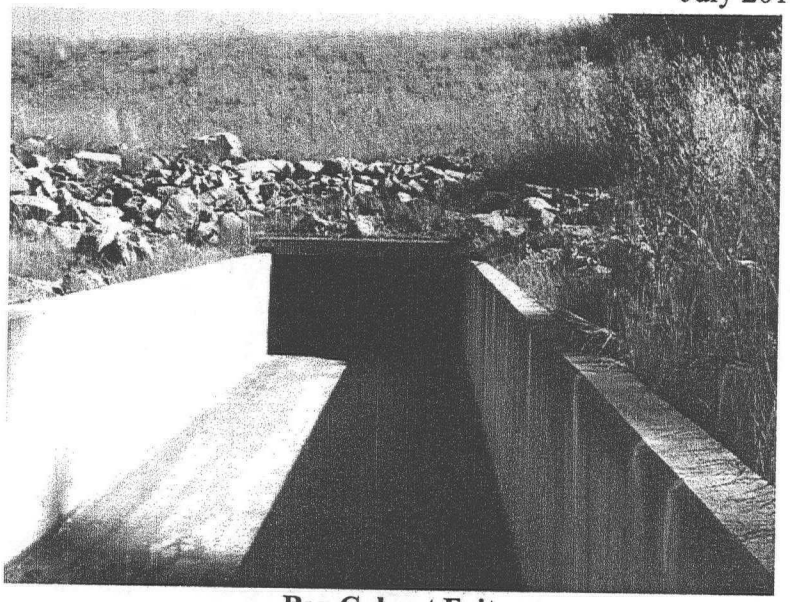


Box Culvert

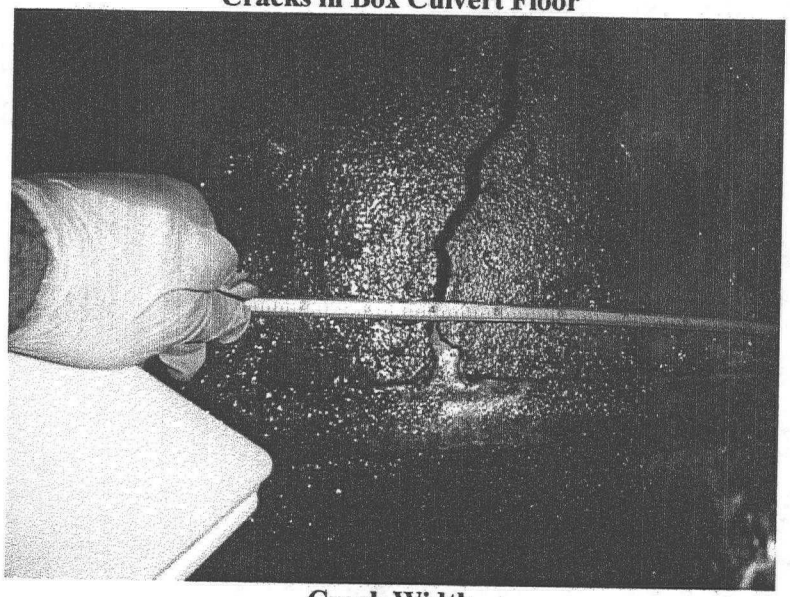
More Cracks in Box Culvert Ceiling



Cracks in Box Culvert Floor

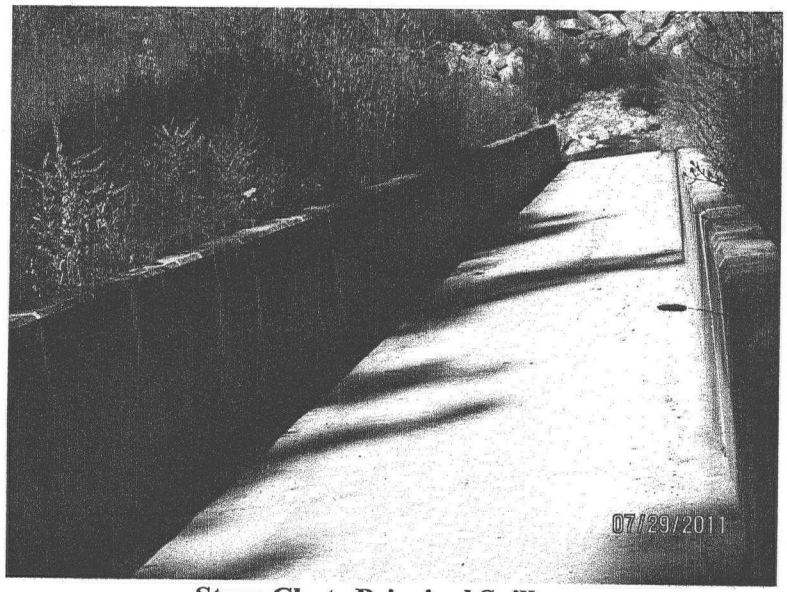


Box Culvert Exit

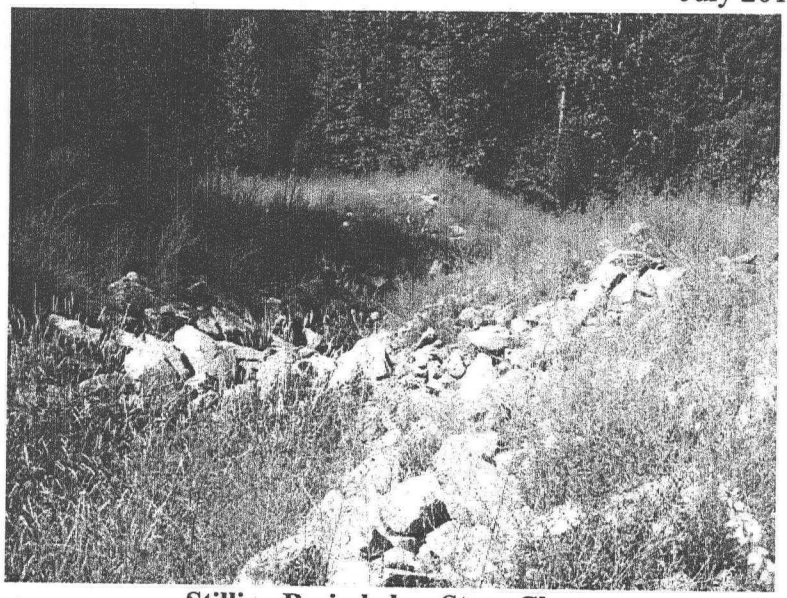


Crack Width

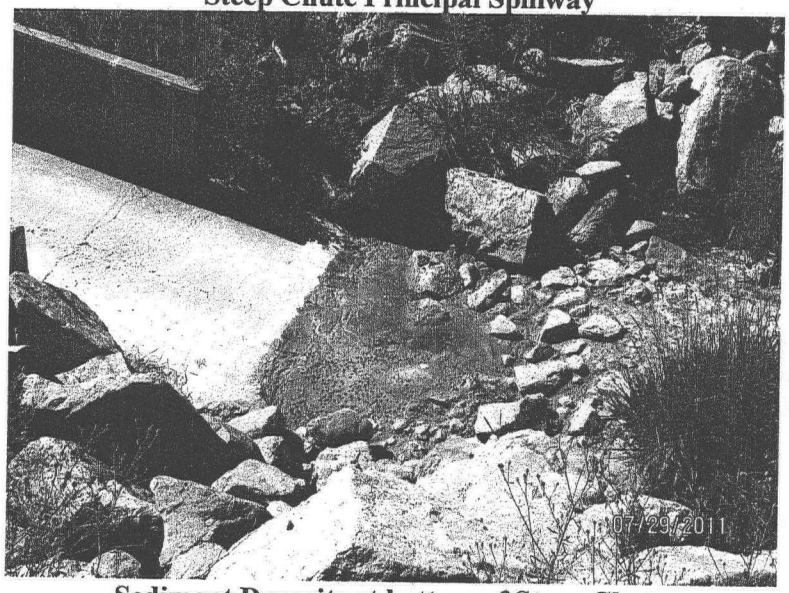
Sediment Deposits in Spillway at Flume Location



Steep Chute Principal Spillway



Stilling Basin below Steep Chute



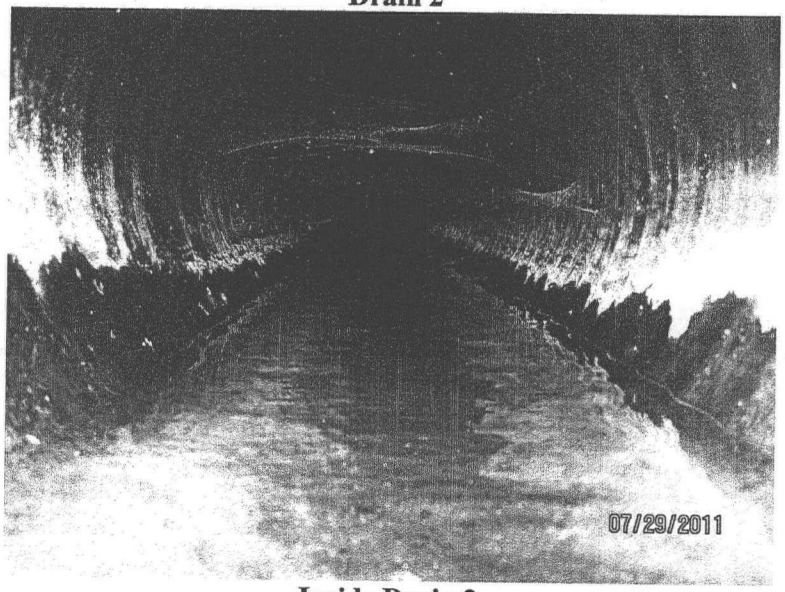
Sediment Deposits at bottom of Steep Chute

Drains 1 and 2

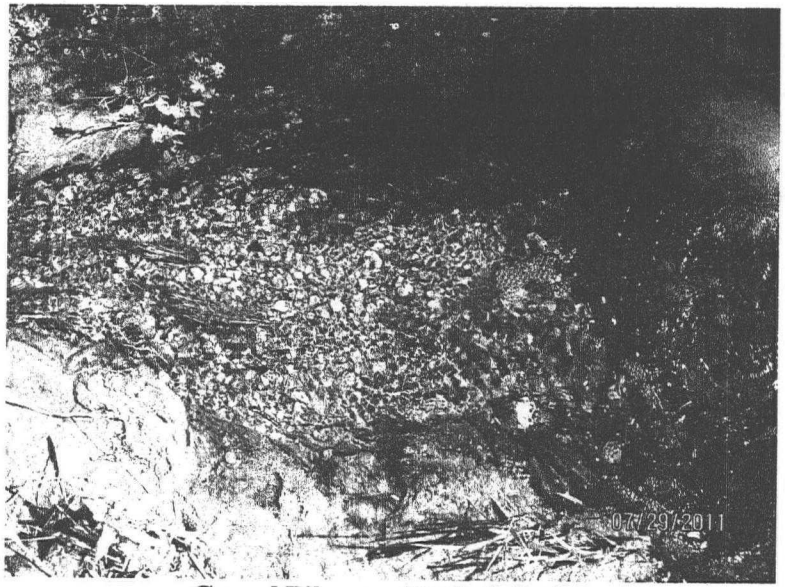
Drain 1

Drain 2

Inside Drain 1

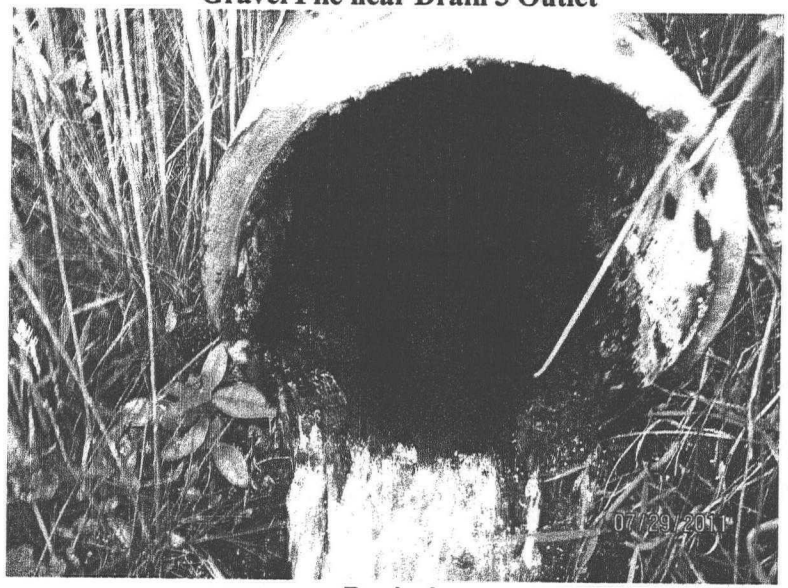


Inside Drain 2



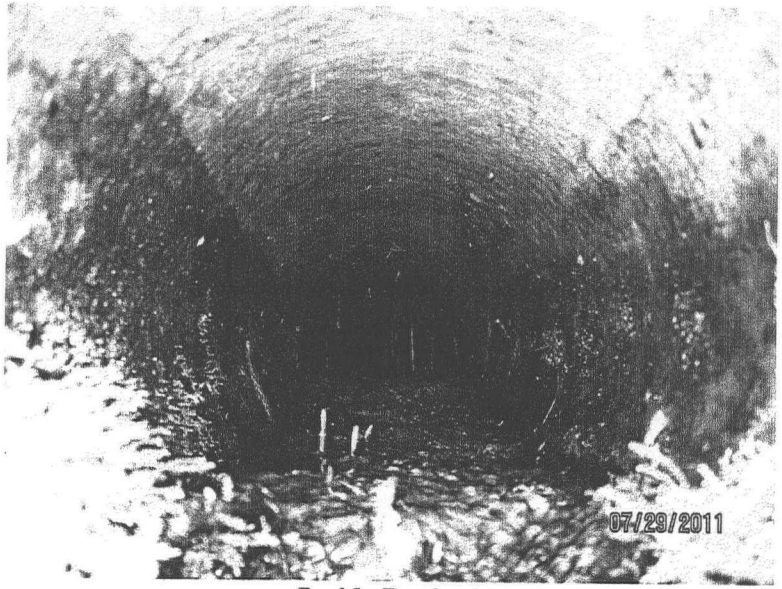
Gravel Pile near Drain 3 Outlet

Inside Drain 3

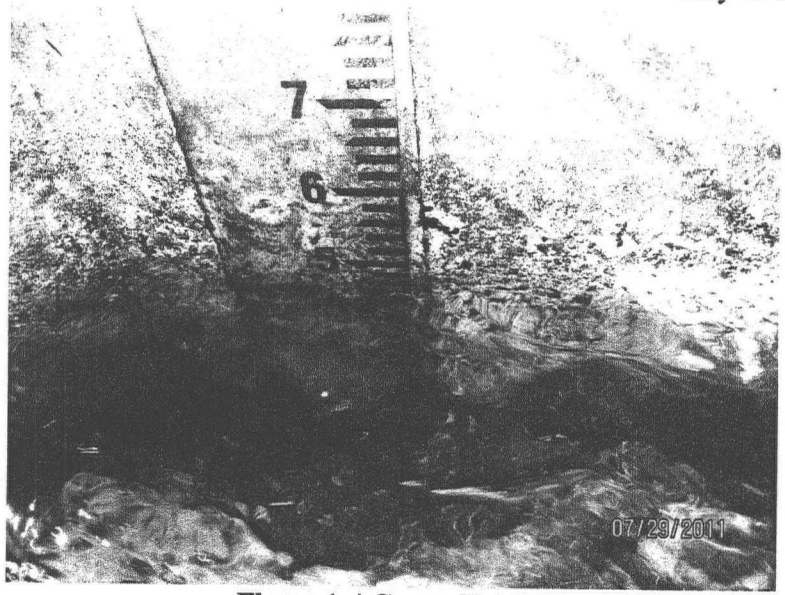


Drain 3

Drain 4



Inside Drain 4

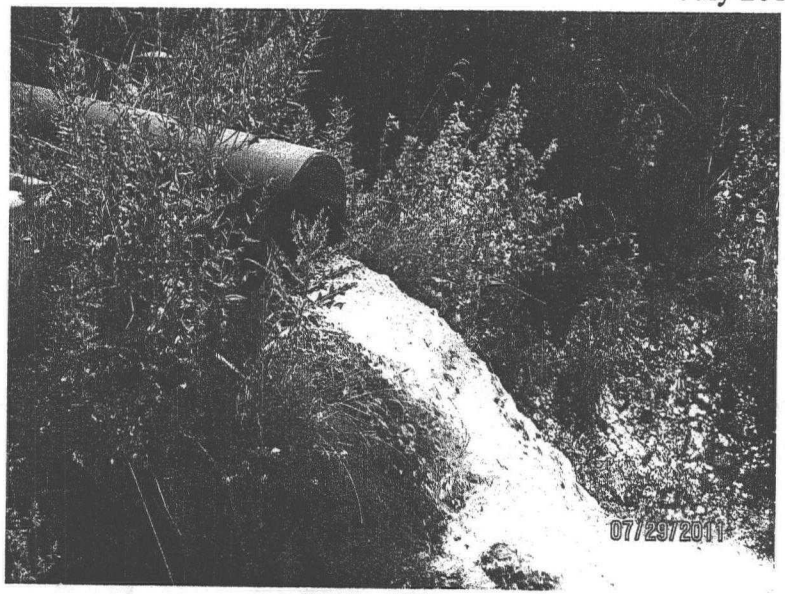


Flume 1-4 Gauge Height

Flume 1-4

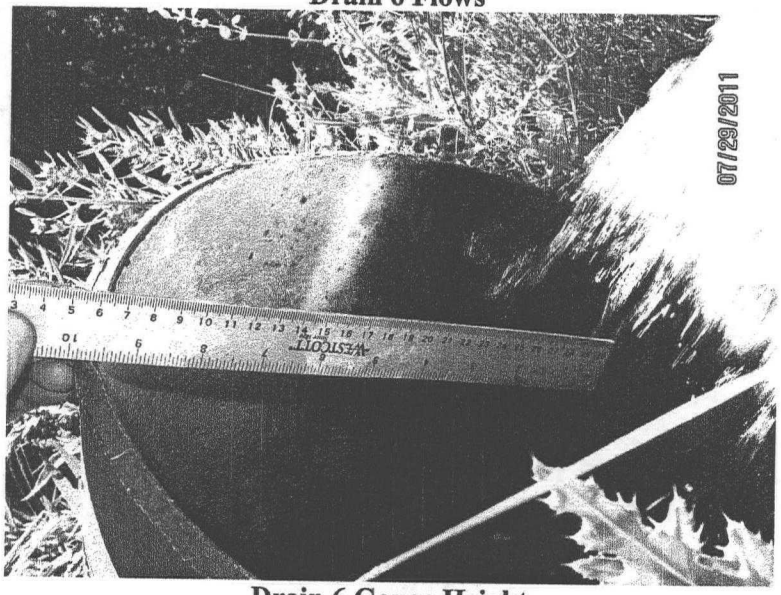
Drain 5

Inside Drain 5

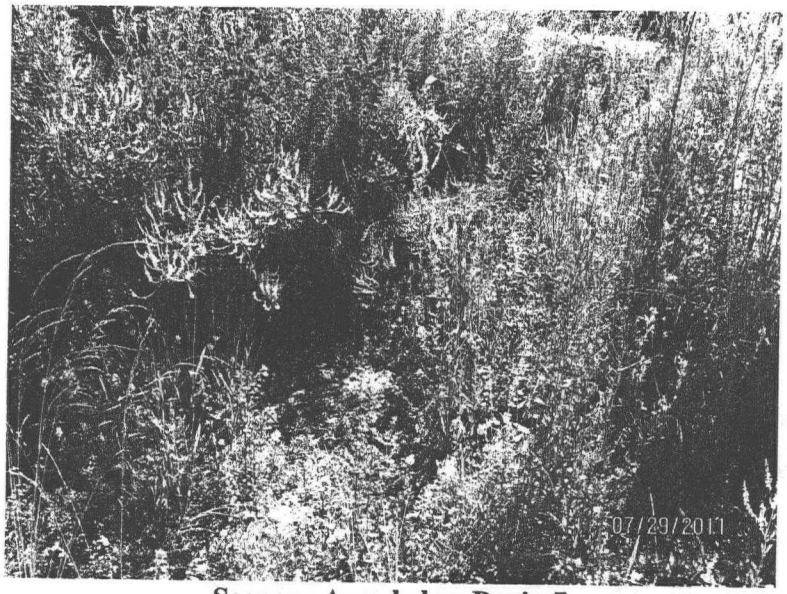


Drain 6 Flows

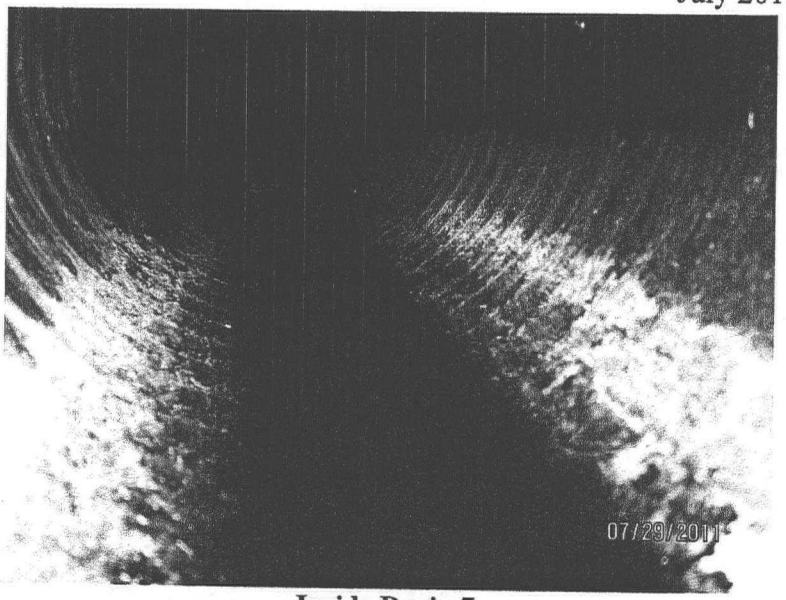
Weir 5 Flow



Drain 6 Gauge Height



Seepage Area below Drain 7

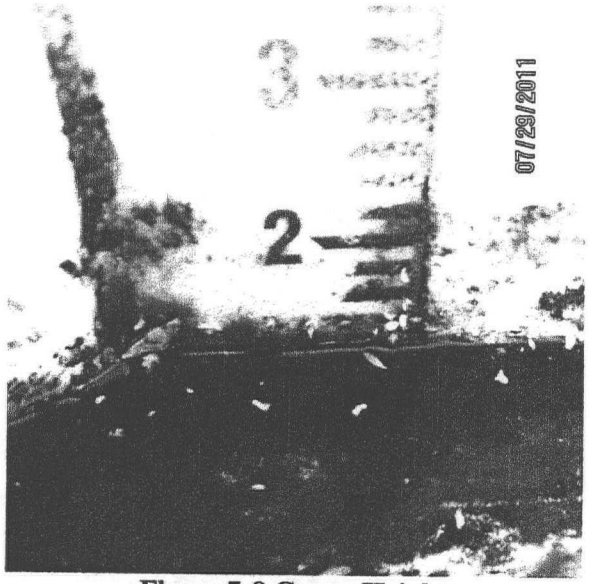


Inside Drain 7

Drain 7

Drain 8

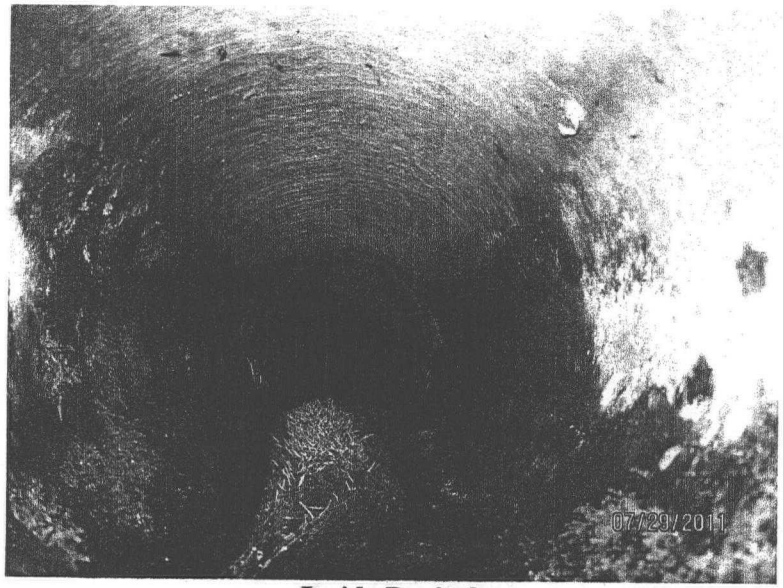
Inside Drain 8



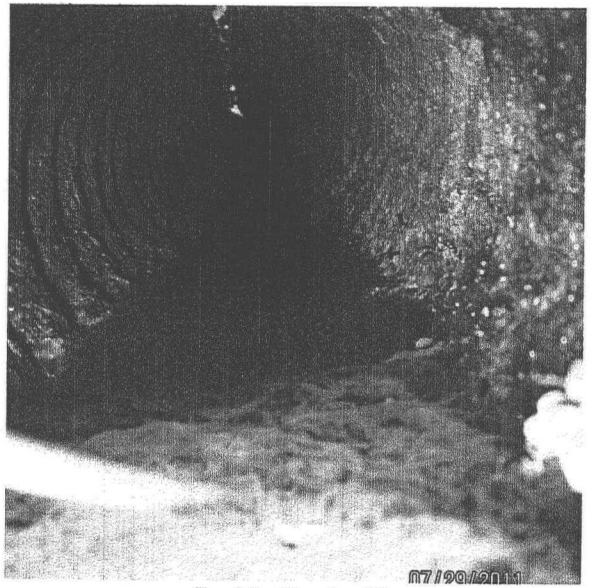
Flume 7-8 Gauge Height

Flume 7-8

Drain 9



Inside Drain 9



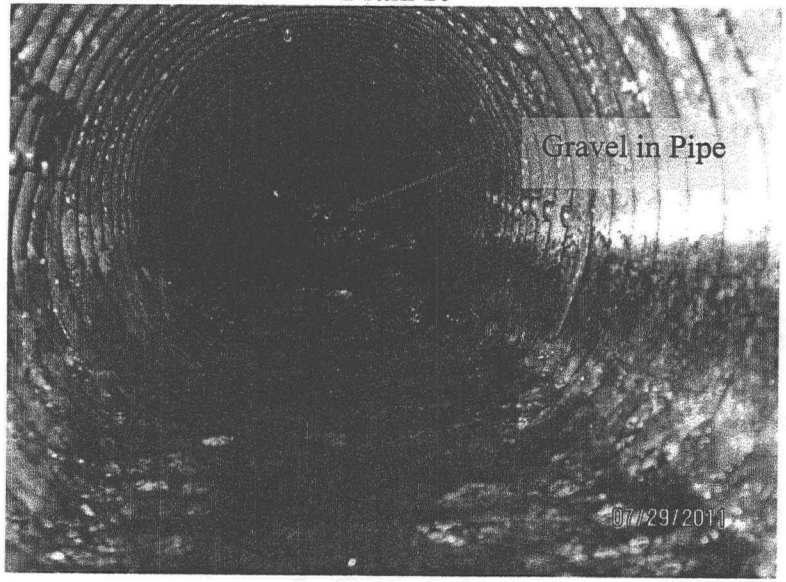
Inside Drain 13

Drain 13

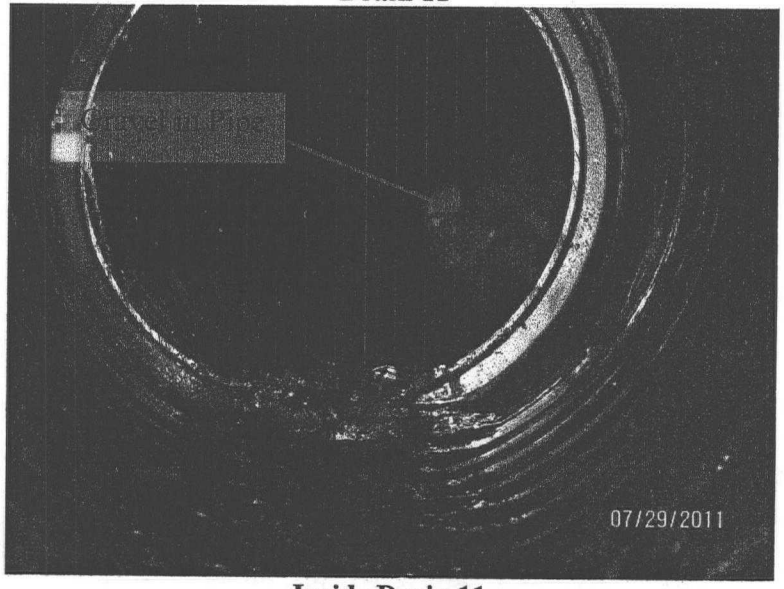
Drains 10 and 11

Drain 10

Drain 11



Inside Drain 10

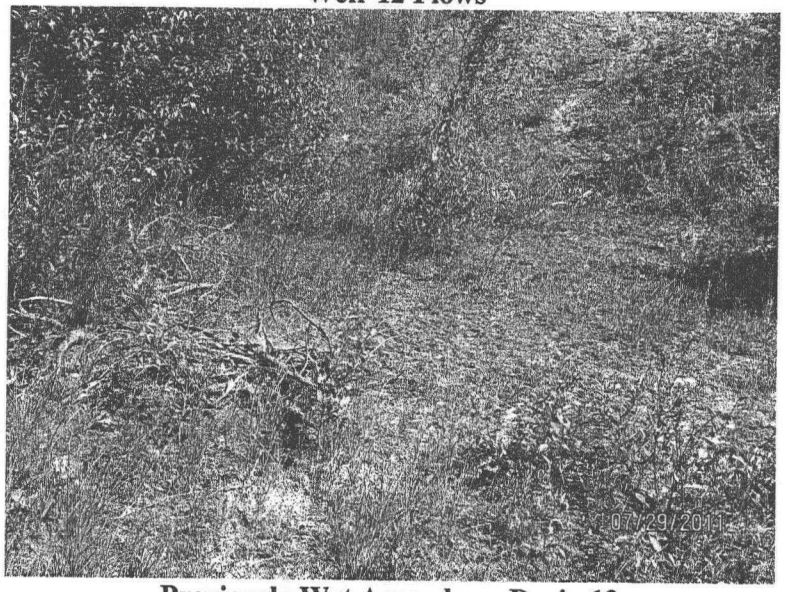


Inside Drain 11

Drain 12

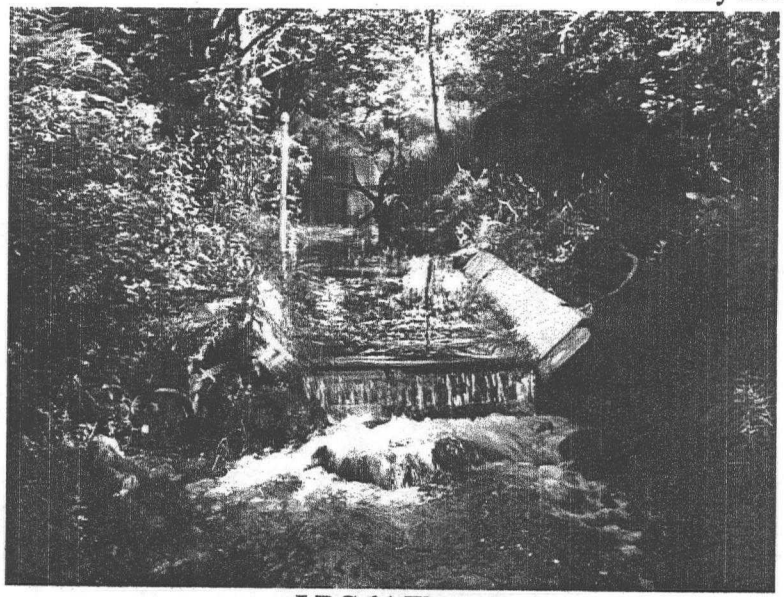
Weir 12 Flows

Inside Drain 12



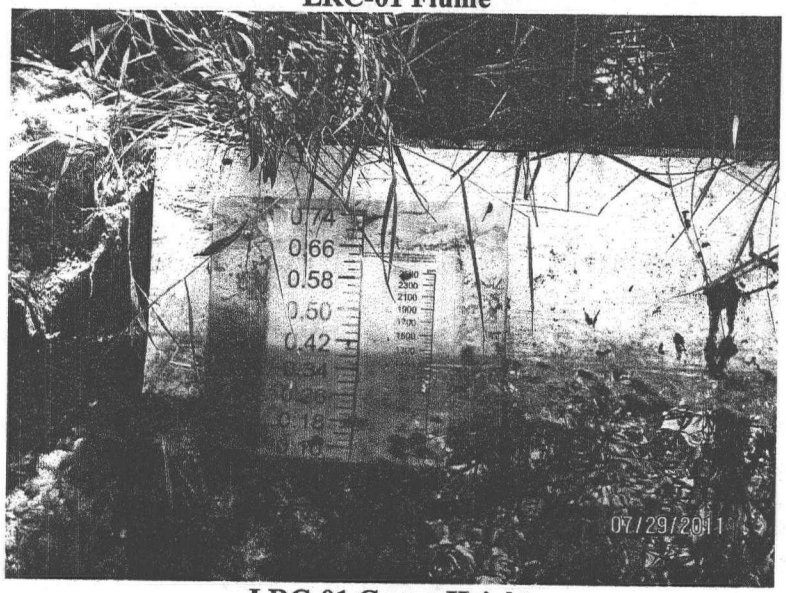
Previously Wet Area above Drain 12

Lower Rainy Creek below Drain 6

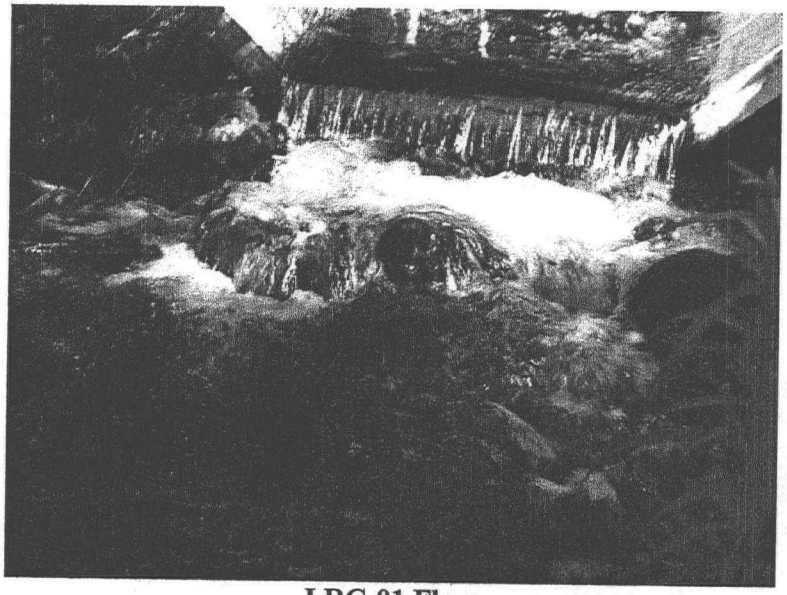


LRC-01 Flume

Upstream LRC-01



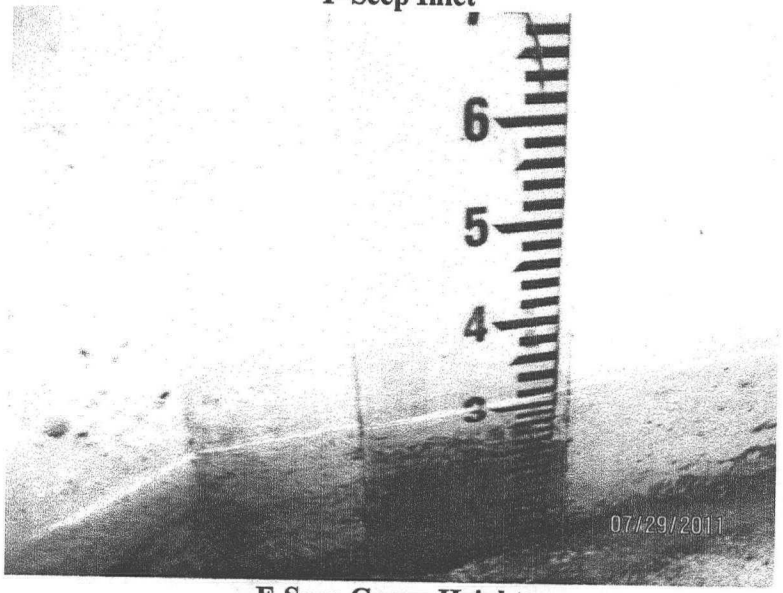
LRC-01 Gauge Height



LRC-01 Flow

F-Seep Inlet

F-Seep Flume



F-Seep Gauge Height

APPENDIX 2

PERIODIC INSPECTION REPORT & FIELD NOTES

PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	OBSERVATION DATE (S)	29-Jul-11
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	WEATHER CONDITIONS	Clear, warm ~65°, Calm
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02 , LRC02 and LRC06. Download transducers	EQUIPMENT	Well probe, long fiberglass tape, camera, flashlight,misc. field equip.

AREA INSPECTED	ITEM NO.	EMBANKMENT CONDITION	OBSERVATION	CHECK ACTION NEEDED: MONITOR	INVESTIGATE	REPAIR	OTHER
CREST	1	GENERAL SURFACE CONDITION	Good, no change				
	2	DISPLACEMENTS	None				
	3	EROSION	None				
	4	CREST ALIGNMENT	Good, no change				
	5	WEEDS OR BRUSH	Heavy growth in past month				
	6	ANIMAL BURROWS	No change				
	7	EARTHEN EMERGENCY SPILLWAY	Good, no change				
	8						
	9						
DOWNSTREAM FACE	10	SLIDES, DISPLACEMENT OR BUDGES	None				
	11	EROSION	None				
	12	WEEDS OR BRUSH	Heavy growth in past month				
	13	PIEZOMETER CASINGS	Good, no change				
	14	ABUTMENT CONTACTS	Good, no change				
	15	ANIMALS BURROWS	No change				
	16	DISTANCE TO WATER	~100 ft. reservoir GH= 2.24 feet				
	17						
	18						
	19						

ADDITIONAL COMMENTS, REFER TO ITEM NO. IF APPLICABLE

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM ROUTINE OWNERS INSPECTION REPORT

PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	OBSERVATION DATE (S)	7/29/11
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	WEATHER CONDITIONS	Clear, warm ~55°, Calm
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02 , LRC02 and LRC06. Download transducers	EQUIPMENT	Well probe, long fiberglass tape, camera, flashlight,misc. field equip.

AREA INSPECTED	ITEM NO.	DOWNSTREAM AND INSTRUMENTATION — CONDITION	OBSERVATION	CHECK ACTION NEEDED: MONITOR	INVESTIGATE	REPAIR	OTHER
DOWNSTREAM SLOPE	20	GENERAL SURFACE CONDITION	Good no change				
	21	DISPLACEMENTS	None				
	22	EROSION	None				
	23	LIFT ALIGNMENTS	Good				
	24	WEEDS OR BRUSH	Heavy growht in past month				
	25	ANIMALS BURROWS	No change				
	26	EARTHEN EMERGENCY SPILLWAY	Good, no change				
	27	SEEPAGE	None				
	28	ABUTMENT CONTACTS	Good, no change				
INSTRUMENTATION	29	PIEZOMETERS	Measured, see attached measurements	X			
	30	WEIRS	Gauges read, see attached	X			
	31	FLUMES	Gauges read, see attached	X			
	32	RESERVOIR LEVELS	GH = 2.24' Approx. 51.28 AF	X			
	33	RAINY CREEK INFLOW MEASUREMENTS @ URC02	GH= 0.76, 552 gpm	X			
	34	RAINY CREEK OUTFLOW BELOW DAM @ LRC01	GH= 0.39, 1262 gpm	X			
	35	STREAM OUTFLOW BELOW MILL POND @LRC02	GH=0.86, 1403 gpm	X			
	36	STREAM OUTFLOW FROM CARNEY CREEK @CC02	GH=0.22, 136 gpm	X			
	37	STREAM OUTFLOW FROM RAINY CREEK @LRC06	GH=0.90, 1506 gpm	X			
	38	FLUME 1-2-3-4	GH=0.51, 187 gpm	X			

ADDITIONAL COMMENTS REFER TO ITEM NO. IF APPLICABLE

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM ROUTINE OWNERS INSPECTION REPORT

PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	*OBSERVATION DATE (S)*	*7/29/11*
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	*WEATHER CONDITIONS*	*Clear, warm ~65°, Calm*
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02 , LRC02 and LRC06. Download transducers	*EQUIPMENT*	*Well probe, long fiberglass tape, camera, flashlight,misc. field equip.*

AREA INSPECTED	ITEM NO.	INSTRUMENTATION (CONT.) AND DOWNSTREAM TOE AREA CONDITION	OBSERVATION	CHECK ACTION NEEDED MONITOR	INVESTIGATE	REPAIR	OTHER
INSTRUMENTATION (CONT.)	39	FLUME 10-11-12	Removed, no longer used				
	40	FLUME 7-8	GH=0.13, 7.76 gpm	X			
	41	WEIR 5	GH= 0.187, 17.47 gpm	X			
	42	WEIR 12	GH=0.395, 111.63 gpm	X			
	43	DRAIN 6	GH=0.802, 421.26 gpm	X			
	44	SPILLWAY FLOW	GH=0.00 - Not Running	X			
	45	F-Seep	GH=0.31, est. 63.3 gpm	X			
	46	Drain 2	Water continuing to flow	X	X		
	47	Drain 1	Flowing. +/- 50 gpm	X	X		
DOWNSTREAM TOE	48	ABUTMENTS	Good, no change				
	49	SEEPAGE NEAR TOE	Toe still wet, receeding	X	X		
	50	SEEPAGE DOWNSTREAM OF TOE, LEFT SIDE	Significant reduction in seepage	X	X		
	51	SEEPAGE IN STREAM CHANNEL, LEFT SIDE	Seepage near LRC-01 but receeding	X	X		
	52	VEGETATION	Heavy vegetation growth in past month	X			
	53	CULVERT AT LOWER ROAD	Not monitored				
	54	SEEPAGE DOWNSTREAM OF TOE, RIGHT SIDE	Significant reduction in seepage	X	X		
	55						
	56						

ADDITIONAL COMMENTS, REFER TO ITEM NO. IF APPLICABLE

Item 47 - Flow continued in Drain 1. Observations will continue to seek correlation between reservoir level and flow

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM ROUTINE OWNERS INSPECTION REPORT

PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	OBSERVATION DATE (S)	7/29/11
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	WEATHER CONDITIONS	Clear, warm ~65°, Calm
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02, LRC02 and LRC06. Download transducers	EQUIPMENT	Well probe, long fiberglass tape, camera, flashlight,misc. field equip.

AREA INSPECTED	ITEM NO.	CONDITION	OBSERVATION	CHECK ACTION NEEDED: MONITOR	INVESTIGATE	REPAIR	OTHER
		SPILLWAYS					
PRINCIPAL SPILLWAY (BOX CULVERT AND OPEN CHANNEL CHUTE SPILLWAY)	58	ENTRANCE CONDITION	No changes noted				
	59	CENTERLINE CRACK FLOOR	No changes noted	X			
	60	CENTERLINE CRACK CEILING	No changes noted	X	X		
	61	TRANSVERSE JOINTS	No change, same CaCo3 deposits				
	62	GENERAL CONCRETE	Good to excellent, no change				
	63	SEEPAGE OR WATER	None noted	X			
	64	OPEN CHANNEL CONCRETE	Good to excellent, no change				
	65	OPEN CHANNEL JOINTS	Good to excellent, some need repairs			X	
	66	OPEN CHANNEL GENERAL	Good				
OPEN CHANNEL STEEP CHUTE SPILLWAY	67	JOINTS	Good				
	68	WALL CONCRETE	Visual from above, good				
	69	FLOOR CONCRETE	Visual from above, good				
	70	WALL TOPS	Good				
	71	WEEDS ALONG WALLS	None noted				
	72	STILLING BASIN RIPRAP	Good				
	73	WEED AND BRUSH IN STILLING BASIN	Good at this time.				
	74						
	75						
	76						

ADDITIONAL COMMENTS, REFER TO ITEM NO. IF APPLICABLE

Item 65 - Chapman Construction making minor joint repairs on the principal spillway

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM ROUTINE OWNERS INSPECTION REPORT

PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	OBSERVATION DATE (S)	7/29/11
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	WEATHER CONDITIONS	Clear, warm ~65°, Calm
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02 , LRC02 and LRC06. Download transducers	EQUIPMENT	Well probe, long fiberglass tape, camera, flashlight,misc. field equip.

AREA INSPECTED	ITEM NO.	RESERVOIR AND UPSTREAM DRAINAGE BASIN CONDITION	OBSERVATION	CHECK ACTION NEEDED MONITOR	INVESTIGATE	REPAIR	OTHER
RESERVOIR	77	LEFT SIDE (TAILINGS SLOPE)	Stable				
	78	RIGHT SIDE	Stable				
	79	RESERVOIR LEVEL	GH=2.24 ft.	X			
	80	WETLANDS	Good, no change				
	81	UPPER POND	Full				
	82	DISTANCE FROM UPSTREAM SLOPE	~ 100 ft. and receeding	X			
	83						
	84						
	85						
UPSTREAM DRAINAGE BASIN	86	PRECIPITATION WY 2010-20111 AS OF DATE OF INSP.	140% of normal at Banefield. Entire Basin at 127% of normal	X			
	87	RECENT RAINS	2.3 inches of precipitation in the last month.	X			
	88	FIRE DANGER	Low-Medium				
	89	CHANGES	None				
	90	VEGETATION	Heavy growth this year				
	91	RAINY CREEK DRAINAGE	Runoff finished, dropping flows				
	92	FLEETWOOD CREEK DRAINAGE	Runoff finished, dropping flows				
	93	MINE SITE	ER has resumed opperations for the summer				
	94						
	95						

ADDITIONAL COMMENTS, REFER TO ITEM NO. IF APPLICABLE

KOOTENAI DEVELOPMENT IMPOUNDMENT DAM ROUTINE OWNERS INSPECTION REPORT

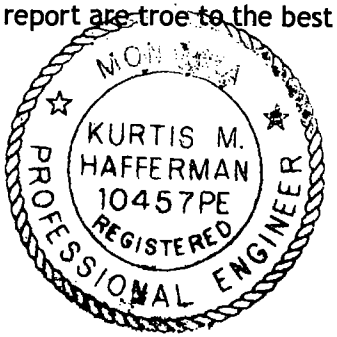
PRINCIPAL INSPECTOR ON SITE: Kurt Hafferman, P.E.	*OBSERVATION DATE (S)*	*7/29/11*
OTHER PERSONNEL ON SITE: Dan Nelson from BHI and Jeremy Peterson from Chapman Const.	*WEATHER CONDITIONS*	*Clear, warm ~65°, Calm*
Work Tasks: Measure flows, check URC02 and Fleetwood Creek, take reservoir level, measure piezometers, check drains, drain flow, gauge height at LRC01, CC02 , LRC02 and LRC06. Download transducers	*EQUIPMENT*	*Well probe, long fiberglass tape, camera, flashlight,misc. field equip.*

AREA INSPECTED	ITEM NO.	EARTHEN SPILLWAY AND MILL POND AND OTHER — CONDITION	OBSERVATION	CHECK ACTION NEEDED: MONITOR	INVESTIGATE	REPAIR	OTHER
EARTHEN SPILLWAY	96	LEFT SIDE NEXT TO CREST	Good, no change				
	97	RIGHT SIDE	Good, no change				
	98	RESERVOIR LEVEL	Normal				
	99	RIPRAP	Good, no change				
	100	ROAD CONDITION	Good, no change				
	101	DOWNSTREAM SLOPE	Good, no change				
	102	TRASH RACk	Some accumulating debris	X			
	103						
	104						
MILL POND	105	CREST	Good				
	106	UPSTREAM FACE	Good				
	107	DOWNSTREAM FACE	Good				
	108	SPILLWAY FLOW	Flowing				
	109	RIPRAP IN SPILLWAY	Good, no change				
	110	ANIMALS ON EMBANKMENT	Not seen	X			
	111	ANIMALS IN SPILLWAY	Not seen				
	112	RESERVOIR LEVEL	Normal for runoff conditions	X			
OTHER	113	Animals Monitoring	None noted during this visit.	X			

ADDITIONAL COMMENTS, REFER TO ITEM NO. IF APPLICABLE

Engineers Certification and Seal

I declare that the data collection and completion of this report titled the July 2011 Routine Owners Inspection Report for the Kootenai Development Impoundment Dam, known as the subject property was completed under my direction. This assessment has revealed the conditions discussed in the inspection form in connection with the property. I declare that the statements made in this report are troe to the best of my belief and professional knowledge.



12-28-2011

Kurtis M. Hafferman, P.E. MT PE 10457 Date

CONTENTS

PAGE	REFERENCE	DATE

Location KDID Date 7/29/2011

Project / Client R.56.1

Friday January 29, 2011

KDID Rd 1

Hafferman

Location _____ Date 7/29/21

Project / Client _____

On site at 09:15 clear warm ~ 65°F
Task list & safety meeting

- Truck traffic
  - travel past Mill Pond
- Temperature @ work site
- Check valves and seals

- Down load transducer
  Dam & Servey

- Pneumatics Kurt

- Inspection
  kurt embankment
  spillway
  measure flows
  dam - toe drains
  res. levels
  seepage flume
  CCO2 & LRCO2

Location _____ Date _____

Project / Client _____

CCO2

Flows are lower and clear
qh = 0.22 Q = 150.7 gpm

T = 49°F

weeds starting to grow / obstruct observations
all else dry

LRCO2

Flows lower, clear

qh = 0.86 Q = 1443 gpm

very heavy clover/weed growth

Location _____ Date _____

Project / Client _____

Piezometers

Upstrm

P-	101.9	dry	
P1-	100.23	wet	103.9 bottom
P2	105.09	wet	
P3	60.4	dry	
P4	101.6	wet	
P5	103.99	wet	104.2 bottom

Dwstrm

PM6	65.60	dry	
PM2	94.01	wet	
PM5	50.10	dry/wet	

Location _____ Date _____

Project / Client _____

Prim. Spillway

Channel wet but not flowing water in channel

Water pooling/standing near entrance, Assumes spillway may have just recently stopped flowing